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Canada. [Conferences] Resources for
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[Statement and papers]



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Resources for tomorrow conference

[Statements and papers]

Biographical notes of workshop leaders. 1961.

Biographical notes of authors of background papers. 1961.

Resources for tomorrow by Walter Gray. 1961.

Transcription of tape recorded speech delivered by the Prime Minister, the Right Honourable John C. Diefenbaker. 1961.

"Resources for tomorrow" conference [by] the Hon. Jean Lesage, Premier of Quebec. 1961.

A statement - "Resources for tomorrow" [by] Dr. B. H. Kristjanson. 1961. c.1. & 2.

Address by Hon. J.W. Spooner, Minister of Ontario, Department of Lands and Forests. 1961.

List of participants. 1961.

"Resources for tomorrow" conference. Dept. of Northern affairs and national resources. 1961.

Improving industrial climate through financial assistance by D.H.F. Black, Deputy Minister, Department of Industry and Information, Saskatchewan.

Capital requirements of water resource development in Canada by John Davis. 1961.

Remarks delivered during a panel discussion on Capital requirements for resource development [by] G.E. Pushie, Director general, Dept. of Economic Development, Newfoundland. 1961. c. 1. & 2.

Remarks prepared for panel discussion on Income and employment effects of renewable resource development [by] Dalton Robertson. 1961.

Paper delivered by Mr. J. A. Roberts, Deputy Minister of Trade and Commerce to the panel on Income and employment effects of a renewable resource development. 1961.


Income and employment effects of renewable resource development, address by W.R. Dymond. 1961.

Renewable resources and Canada's future by T.K. Shoyama. 1961.

Remarks prepared for a panel discussion on Renewable resources and Canada's future. 1961.

Renewable resources and Canada's future by Mr. F.L. Mitchell. 1961.

Address by the Honourable Rene Levesque Minister of Natural resources of Quebec. 1961.



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Statements and papers

BIOGRAPHICAL NOTES OF WORKSHOP LEADERS

Canada - Conference -

"RESOURCES FOR TOMORROW"
CONFERENCE

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MONTREAL
OCTOBER 23-28, 1961

NOTES BIOGRAPHIQUES DES DIRIGEANTS DES SÉANCES D'ÉTUDE

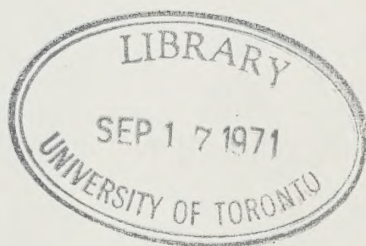
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CONFÉRENCE SUR
«LES RESSOURCES ET NOTRE AVENIR»

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MONTRÉAL
LES 23-28 OCTOBRE 1961

Note: It has not been possible, because of lack of time, to obtain biographical sketches of all discussion leaders for this printing.



ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1961

Biographical Notes of Workshop Leaders

ALLSTON, J. J., Director of Urban and Rural Planning, Newfoundland. Department of Municipal Affairs and Supply since 1956. Born, Colchester, England. Educated: in Essex, with Ordnance Survey of Great Britain, 1939-1941. Served in Second World War with Royal Engineers 1941-1947. With Ministry of Fuel and Power, open cast coal production in South Wales. With Somerset County Council Planning Department, 1950-1954. Joint Planning Officer, St. John's, Newfoundland, 1954-1956. Councillor, Town Planning Institute of Canada. Chairman, Provincial Planning Advisory Board of Newfoundland.

AUGER, P. E., Deputy Minister, Quebec Department of Natural Resources since 1960. Born, Ste-Croix 1908. Educated: Laval University, B.A. (1929) B.Sc. (chemistry) 1933. One year research work and teaching in physical chemistry, Superior School in Chemistry (1934). Queen's University, B.Sc. (1936) M.I.T., D.Sc. (Geology) 1939. Geologist, Quebec Department of Mines, 1938-1944. Geologist, Val d'Or Mining School, 1939-1942. Professor, 1943-1947 applied geology, Science Faculty, Laval University. Consulting Geologist, 1948-1960. Fellow, Royal Society of Canada. Member of Canadian Institute of Mining and Metallurgy.

BAKER, ERIC W., F.L.M.I. Born, Toronto, 1906. Founding Chairman, Humber Valley Conservation Authority; former Vice-Chairman, Metropolitan Toronto and Region Conservation Authority; Charter Member, Conservation Council of Ontario; former secretary of Ontario Division, Community Planning Association of Canada. Chairman of Niagara Conference on land use at Vineland in 1958.

BAKER, WILLIAM B., Director, Center for Community Studies, University of Saskatchewan. Born, Verigin, Sask. 1919. Educated: Verigin high school, University of Saskatchewan—School of Agriculture (1938-1940), College of Agriculture, B.S.A., (1944). Specializing in farm management; University of Minnesota, Rural Sociology (1945-1946); University of Kentucky (1948-1949); University of Michigan (1951-1952). Director, School of Agriculture, University of Saskatchewan (1946-1956); Professor of Rural Education, University of Saskatchewan, Chairman, Sask. Royal Commission on Agriculture and Rural Life (1952-1956). President, Saskatchewan Association for Adult Education.

BALDWIN, NORMAN S., Executive Secretary, Great Lakes Fishery Commission (International) at Michigan since 1957. Born, Toronto, 1920. Educated: University of Toronto, B.A., M.A. On staff of Division of Research, Ontario Department of Lands and Forests 1947-1957 engaged in study of ecology of speckled trout in lakes.

BATES, JOHN SEAMAN, Chairman, New Brunswick Water Authority. Born Woodstock, Ontario, 1888. Educated: Acadia University, B.A., B.Sc., honorary D.Sc. Columbia University, Chemical Engineer, Ph.D., University of Ottawa, honorary D.Sc. Technical Advisor, Price and Pierce (London, Eng.) 1933-1940; Canadian Manager (Montreal) 1940-1951. Chairman, New Brunswick Forest Development Commission 1955-1957.

BELANGER, MICHEL, Director of Planning, Department of Natural Resources since 1960. Born: Levis, P.Q., 1929. Educated: Laval University, B.A. (1949), B.Sc. Post-graduate in Economics and Urban studies, McGill University. (scholar C.M.H.C.). Canada Dept. of Finance, Ottawa, 1954-1960. Research work with Royal Commission on Energy, 1958-1959.

BENNETT, R. G., Chief Agricultural Officer, Ontario Department of Agriculture since 1958. Born, Wentworth County, Ontario. Educated: Waterdown High School, Ontario Agricultural College, graduating in 1943. Appointed Assistant Agricultural Representative, Glengarry County, 1944. Transferred to Huron County as Agricultural Representative, 1948. Became Associate Director, Agricultural Representative Branch, Ontario Department of Agriculture, 1951. Appointed Associate Director of Extension, 1956.

BÉRUBE, LOUIS, Director of Studies and Professor, École Supérieure des Pêcheries (Superior School of Fisheries) since 1938. Born, St-Philippe-de-Néri, 1897. Educated: Laval University, B.A., Rimouski Seminary, B.Sc. Ag. (1921), Superior School of Agriculture, Ste-Anne-de-la-Pocatière, Laval University. Master of Social Sciences (1948). Special courses at University of Washington, School of Fisheries and M.I.T. 1924-1926. Organizer and Acting Director, Fisheries Training School, Grande-Rivière, 1948-1956. Was President, National Association of Canadian Fishermen's Co-operatives. As a Colombo Plan fisheries expert visited Cambodia, Thailand and Ceylon, 1956. In 1958 headed Canadian fisheries mission to Ceylon and Malaya.

BLACK, D. H. F., Deputy Minister, Saskatchewan Department of Industry and Information since 1960. Born, Toronto, 1911. Educated: McGill University, B.A. (1932) and B.C.L. (1935). On staff Dominion Bridge Company Ltd. as legal advisor and manager of industrial relations. In 1946 became Deputy Industrial Executive with the Saskatchewan Government. In 1955 was Chairman, U.N. technical mission to Ceylon.

BLADEN, V. W., DEAN, Faculty of Arts and Science, University of Toronto since 1959. Born, Stoke-on-Trent, Eng. 1900. Educated: Oxford University, M.A. Member of staff, Department of Political Economy, University of Toronto since 1921. Professor, 1940; Chairman, 1953-1959. Editor, Canadian Journal of Economics and Political Science 1935-1947. President of Canadian Political Science Association, 1948. Royal Commissioner to investigate Canadian Automotive Industry, 1961-1962.

BLUMENFELD, HANS, Assistant Commissioner and Consultant, Metropolitan Toronto Planning Board since 1955. Born, Osnabrueck, Germany, 1892. Educated: Polytechnical Institute, Darmstadt, Germany. Architect-City Planner with Russian City Planning Institute, Moscow, 1930-1937. Research Director, Philadelphia Housing Association, 1941-1944. Planning Consultant, Philadelphia, 1953-1955.

BOLSTAD, W. G., Treasury Department, Government of Saskatchewan since 1960. Born, Saskatchewan, 1930. Educated: University of Saskatchewan, B.A., B. Comm., Harvard University, M.P.A. Major activities related to improving the machinery of government in Saskatchewan. Assignments with Continuing Committee on Local Government, the Government Finance Office and the Advisory Planning Committee on Medical Care.

BOUCHER, G. P., Economist with Economics Division, Canada Department of Agriculture since 1935. Born, St-Philippe-de-Néri, P.Q., 1911. Educated Classical College, Ste. Anne-de-la-Pocatière, Laval University B.S.A. (1933). Post-graduate work O.A.C. 1933-1934, Post-graduate work (economics) University of Toronto, 1934-1935 and at University of Minnesota, 1948 and 1951, M.Sc. (1951). Served in Second World War with Canadian forces.

BRODIE, J. A., Chief, Timber Branch, Ontario Department of Lands and Forests. Educated: University of Toronto, B.Sc.F. (1923); M.Sc.F. (1943). Employed with Department of Lands and Forests since 1923. Has held post of Director of Research and Chief of Forest Protection. For some years a member of the Forest Insect Laboratory Advisory Committee—a joint undertaking between the Province of Ontario and federal Department of Agriculture.

BRUCE, J. P., Canada Department of Transport, Toronto. Born, Toronto, 1928. Educated: University of Toronto, B.A. (1948) and M.A. Physics (Meteorology) 1952. Employed by Meteorological Branch, Canada Department of Transport since 1948. In 1955 loaned to Conservation Branch, Ontario Department of Commerce and Development to organize a flood warning service. In 1958 appointed head, hydrometeorology section, Climatology Division. Special Lecturer in Hydrology, University of Toronto.

CAMPBELL, D. R., Head, Department of Agricultural Economics, Ontario Agricultural College. Born, Hastings County, Ont. 1918. Educated: University of Toronto, B.A. (1949), Rhodes Scholar; Oxford University, B.A. Farmed 1937-1942 Served in Second World War with R.C.A.F. Joined Department of Agricultural Economics, O.A.C. 1951. Past President, Canadian Agricultural Economics Society and Agricultural Institute of Canada.

CAMU, PIERRE V., Vice-President, St. Lawrence Seaway Authority since 1960. Born, Montreal 1923. Educated: College Ste-Marie, Montreal, University of Montreal, 1944-1947 (M.A.), Ph.D. 1951. Johns Hopkins University 1947-1949. Employed with Department of Mines and Technical Surveys 1949-1956. Professor of Economic Geography, Laval University 1956-1960. Vice-President, St. Lawrence Seaway 1960. In 1947 specialized in transportation in Canada, in particular, the St. Lawrence Seaway.

CARTER, BRIAN C., Wildlife Biologist, Fish and Wildlife Branch, Department of Lands and Mines of New Brunswick. Born, Devenport, England, 1917. Educated: University of New Brunswick, B.Sc. in Forestry; University of Maine, M.Sc. in Wildlife Conservation. On staff, N.B. Forest Service until 1941. Served in Second World War with Royal Canadian Engineers. Wildlife Biologist in Maritimes with Canadian Wildlife Service, 1953-1960.

CASS-BEGGS, DAVID N., General Manager, Saskatchewan Power Corporation. Born, Manchester, England, 1908. Educated: Hulme Grammar School, Manchester and Manchester University, M.Sc. Tech. Lecturer, Schools of Technology, Oxford, 1935-1939. Lecturer, Electrical Engineering, University of Toronto, 1939-1952. Professor, Electrical Engineering, University College, Swansea (U.K.) 1952-1955. Appointed to present position, 1955. During Second World War served on Associate Committee on Aviation, and was responsible for electrical design of Canadian Human Centrifuge, used in studies of blackout of aircrew.

CHANCEY, H. W. R., Superintendent since 1956, Experimental Farm, Canada Department of Agriculture, St. John's West, Newfoundland. Born, St. John's 1917. Educated: University of B.C., B.S.A., M.S.A., (1950-1953). In commercial business and provincial government service prior to 1942. Second World War service with R.C.N.V.R. In charge of federal soil survey work in Newfoundland 1952-1956.

CHURCHMAN, J. W., Deputy Minister, Sask. Department of Natural Resources since 1953. Born, Chauvin, Alberta, 1914. Educated: Saskatchewan Teachers' College and completed various courses in education and business administration at the University of Saskatchewan and University of Western Ontario, School teacher and principal 1934-1941. Served in Second World War with R.C.A.F. Joined the Saskatchewan Department of Natural Resources as Chief Clerk, 1946. Member of South Saskatchewan River Development Commission.

CLARKE, C. H. D., Assistant Chief, Fish and Wildlife Branch, Ontario Department of Lands and Forests. Born, Middlesex County, Ontario. Educated: University of Toronto, Ph.D. in biology (1935). Employed by Department of Mines and Resources, Ottawa, in wildlife work in parks and the Northwest Territories. Appointed to Ontario Department of Lands and Forests in 1944.

CLEMENS, W. A., member, Fisheries Research Board of Canada, 1942-1957. Born in Ontario. Educated: University of Toronto, B.A., M.A. and at Cornell University, Ph.D. Instructor in Zoology, University of Maine, 1915-1916. On staff, Department of Zoology, University of Toronto, 1916-1924. First director, Ontario Fisheries Research Laboratory. Acting director, Atlantic Biological Station, Fisheries Research Board in summer, 1918. Director, Pacific Biological Station, Nanaimo, 1924-1940. Head, Department of Zoology, University of British Columbia, 1940-1953 and director, Institute of Fisheries and Oceanography.

COLL, ALLISON M., Chief, Resource Industries Division, Economics Branch, Canada Department of Trade and Commerce. Born Pictou County, N.S., 1924. Educated: Public and high schools, Ottawa, Ontario. Mount Allison University, B.A. (1944), University of Toronto, M.A. (1947). On staff, Economics Branch, Department of Trade and Commerce from 1947. Seconded to International Materials Conference, Washington, D.C., 1952-1953.

COWAN, I. McT., Head, Department of Zoology, University of British Columbia. Born, Edinburgh, Scotland, 1910. Educated: University of Alberta, B.A., University of California, Ph.D. Biologist and Assistant Director, B.C. Provincial Museum, 1935-1940. On staff, Department of Zoology, U.B.C. 1940—to date. Since 1953, Head of Department of Zoology. Since 1959, Assistant to the Dean, Faculty of Arts and Science, U.B.C. Major fields of activity have been teaching and research in the several areas of biological conservation and environment physiology of mammals and birds. One-time president, American Wildlife Society. Fellow, Arctic Institute of North America. Past President, B.C. Resources Conference. Member, Fisheries Research Board of Canada. Member, National Research Council of Canada.

COWAN, J. G., Deputy Minister, Manitoba Department of Mines and Resources since 1951. Born, Portage La Prairie, 1897. Educated: University of Manitoba and Manitoba Law School. Practised law 1923-1936. In 1936 appointed Assistant Director of Lands, Department of Mines and Natural Resources. In 1940 appointed Assistant Deputy Minister. Made a Q.C. in 1950.

CRAINE, LYLE E. Professor of Natural Resources, University of Michigan. Born, Geneva, Ohio, 1908. Educated: Oberlin College (Ohio) A.B. (1931), University of Wisconsin, Ph.M. (1937), Syracuse University, M.P.A. (1950) and University of Michigan, Ph.D. (Conservation) 1956. Has been research associate, National Resources Planning Board, Director, Organization Planning, War Production Board, Assistant Director, Program Staff, United States Department of the Interior, and Professor of Conservation, University of Michigan.

CRERAR, A. D., Research Planner, Lower Mainland Regional Planning Board, Vancouver. Born, Prince Rupert, 1925. Served in Second World War with R.C.N.V.R. Educated: University of British Columbia; B.A., M.A. majoring in geography. Joined Lower Mainland Regional Planning Board in 1950 as Research Assistant. Work has included study of structure of industrial development in Greater Vancouver.

DANSEREAU, PIERRE, Dean of Science, University of Montreal, 1955-1961. Born, Montreal, 1911. Educated: University of Montreal, B.A., B.Sc. (Ag.), University of Geneva, D.Sc. Botanist, Montreal Botanical Garden, 1939-1941. Assistant Professor of Botany, University of Michigan, 1950-1955. Director, Institut Botanique, 1955-1960. Honorary doctorate in law, University of Saskatchewan, 1960 and honorary doctorate in science, University of New Brunswick, 1960. First Vice-President, Ninth International Botanical Congress, Montreal, 1959.

DAVIES, P. G., Barrister and Executive member, Alberta Branch, Community Planning Association of Canada. Born, Edmonton, 1902. Educated: University of Alberta, B.A., LL.B. Secretary-Treasurer, N.F.C.U.S. 1925-1937. Member of Parliament (Athabasca) 1932-1935. Member, Royal Commission on Metropolitan Development of Calgary and Edmonton 1954-1956. Special interest in municipal law and planning. A Queen's Counsel (Alberta).

DAVIS, JOHN, Director of Research and Planning, B.C. Electric Company Ltd. since 1957. Born, Kamloops, B.C. 1916. Educated: University of B.C., B.A.Sc., B.Sc. Oxford (Rhodes Scholar) University, B.A. and M.A., McGill University, Ph.D. Served with R.C.A.F. in Second World War. Joined Trade and Commerce, Ottawa, and became Director of Economics Division, Defence Production, in 1950. Seconded to staff of Royal Commission on Canada's Economic Prospects as senior economist and director of research.

DAVIDSON, A. T., Chief, Resources Division, Northern Administration Branch, Department of Northern Affairs and National Resources since 1959. Born, Fort William. Educated: Queen's University, B.A. (1948), University of Toronto, M.A. (1950). Appointed Administrative Assistant to Deputy Minister of Natural Resources in Saskatchewan and in 1953 became Assistant Deputy Minister of Natural Resources, Saskatchewan.

DESCHAMPS, ROLAND, Assistant Deputy Minister, Quebec Department of Lands and Forests. Born, Repentigny, 1901. Educated: University of Montreal, B.A. (1922); Laval University, Bachelor of Surveying (1924), and Forestry Engineer (1925). Joined Federal Geodetic Survey, 1925. Joined Quebec Department of Lands and Forests, 1926, in charge of reforestation at Lachute. In 1943 and 1944 technical consultant to the Commission for the Beautification of Quebec. Became Professor at Laval in 1943. In 1950 was President of the Silvicultural Association. Director of the Quebec Forestry Association since 1948.

DESMARAIS, YVES, Professor of Ecology, University of Montreal. Born, St. Vincent de Paul, 1918. Educated: Sainte-Marie College, B.A., (1938), Oka Agricultural Institute, B.Sc. (Ag.), 1941, Graduate Montreal University, Faculty of Social Sciences, (1943), University of Wisconsin, Ph.D. (1948), Research Assistant, National Research Council, 1945, Research Assistant University of Wisconsin, 1945-1948. Joined Laval University Staff, 1948. Superintendent, Montreal Botanical Garden, 1961.

DEUTSCH, JOHN JAMES, Vice-Principal (Administration) Queen's University since May 1959. Born, Quinton, Saskatchewan 1911. Educated: Quinton public school, Campion College, 1930-1933. Queen's University, B. Comm. (1935). Research Assistant, Bank of Canada, 1936-1942. Special Assistant to Under-Secretary of State for External Affairs, 1942-1944. Attended Bretton Woods Conference, 1944. Member Royal Commission on Newfoundland Finances, 1957. Economic Advisor to Special Senate Committee on Manpower and Employment, 1960. Chairman, Royal Commission on Higher Education in New Brunswick, 1961.

DOAN, KENNETH H., Chief Biologist, Fisheries Branch, Manitoba Department of Mines and Natural Resources, Winnipeg since 1959. Born, Toronto, 1915. Educated: University of Toronto, B.A., M.A., Ohio State University, Ph.D. On research staff Stone Biological Station, Lake Erie, 1938-1944. Acting Director, Central Station, Fisheries Research Board of Canada at Winnipeg, 1944-1952.

DOBUSH, PETER, senior partner Dobush Stewart Bourke, Architects and Consultants, Montreal. Born, Winnipeg, 1908. Educated: University of Manitoba, B.A., B. Arch. From 1939-1942 worked on design and construction of war plants, then as architect of works for Atomic Energy of Canada and the National Research Council. Chairman of Committee of Enquiry into the design of residential environment.

DRUMMOND, W. M., Economist, Agricultural Stabilization Board, Ottawa. Born, Bristol, P.Q., Educated: Bristol public school and Carleton Place high school. Graduated from Queen's University in 1923 with honour B.A. and medal in political science; University of Toronto, M.A. (1924). Lecturer in economics, University of Alberta, 1924-1926. Harvard University A.M. and Ph.D. Appointed Professor and Head, Department of Agricultural Economics, Ontario Agricultural College in 1937. Served on various federal committees and boards during Second World War, returning to O.A.C. in 1945. In 1953 served as member of Royal Commission on Agriculture in Newfoundland. In mid-1955 became staff member, Royal Commission on Canada's Economic Prospects. In 1957 appointed a member of the Royal Commission on Price Spreads. On completion of this work Dr. Drummond joined the Canada Department of Agriculture. He is a Fellow of the Agricultural Institute of Canada.

FITZGERALD, M. J., Director of Administration, P.F.R.A., Regina. Born, Rose-town, 1919. Educated: Campion College and University of Saskatchewan, B.S.A. Farm Loan Inspector, Finance Department and Civil Service Commission, Ottawa, 1950-1961. Seconded to F.A.O., Rome 1956-1958 as Executive Chief, Land and Water Use Branch. Secretary, Agricultural Committee, F.A.O. Conference, 1957.

FORTIN, GERALD, A. Associate Professor, Faculty of Social Science, Laval University since 1956. Educated: Laval University, B.A. (1949), M.A. (1954), Cornell University, Ph.D. (sociology) 1956. Conducted monography on marginal agricultural land, 1957-1958, in a Province of Quebec rural community. Since 1958 has acted as an analyst in an intensive and wideranging study of living conditions of salaried French-Canadian families.

FOWLE, CHARLES D., Associate Professor of Zoology, York University, Toronto. Born, British Columbia, 1920. Educated: University of British Columbia, B.A., M.A. in Zoology, University of Toronto, Ph.D. Biologist in charge, Wildlife Research, Ontario Department of Lands and Forests, 1947-1960. Special lecturer in Zoology, University of Toronto, 1948 to present. President, Federation of Ontario Naturalists; Chairman, Wetlands Committee, Ontario Water Resources Commission.

FOWLER, ROBERT M., President, Canadian Pulp and Paper Association and Newsprint Association of Canada since 1945. Born, Peterborough, Ont. 1906. Educated: Peterborough public schools and Collegiate Institute; University of Toronto, honours mathematics 1928, L.L.B. (1931) Honorary LL.D. University of Montreal. Practised law in Toronto 1931-1937. Legal Secretary to Chairman, Royal Commission on Dominion-Provincial Relations 1937-1939. Practised law in Toronto 1939-1945. Secretary and General Counsel of Wartime Prices and Trade Board, Ottawa 1942-1945. Co-Chairman of Canada-U.S. Committee of the National Planning Association.

FRASER, BLAIR, Editor, Maclean's Magazine, since early 1960. Born, Sydney, C.B. Educated: Acadia University, honorary degree D.C.L. First became newspaper man with Montreal Herald, then Montreal Star, later became Associate Editor of the Gazette. Has been around the world four times in last ten years, reporting on developments on the international front. Became Ottawa Editor for Maclean's Magazine in 1943.

GALLAGHER, D.W., Secretary to Treasury Board, Government of New Brunswick, since 1959. Born, St. Stephen, N.B. 1933. Educated: University of New Brunswick, B.A., M.A., (Economics). On staff Treasury Board Division, Department of Finance, Ottawa, 1955-1956. Served as Secretary, Royal Commission on the N.B. Coal Mining Industry. Consultant to N.B. Hospital Services Commission 1959-1960.

GARIGUE, PHILIPPE, Dean, Faculty of Social Sciences, University of Montreal since 1957. Born, Manchester, England 1917. Educated: In France and England. Served with British Army in Africa and Europe in Second World War. Attended London School of Economics, Ph.D. (1948). Specialized in research on social problems of industrial areas. Taught social science subjects at London, McGill and Montreal Universities.

GATHERCOLE, GEORGE EDWARD, Deputy Minister of Economics for Ontario. Born, Hamilton, Ontario 1909. Educated: McMaster University; B.A., University of Toronto, M.A. Majored in economics. From 1944-1955 successively, Assistant Provincial Statistician, Provincial Economist, Assistant Comptroller of Finances, then Deputy Minister of Economics. Directed submissions of Ontario Government to Royal Commissions on Canada's Economic Prospects (1955); Energy (1958); Price Spreads of Food Products (1958); Transportation (1960); Automotive Industry (1960).

GAUS, JOHN M., Professor (Emeritus) of Government, Harvard University. Born, Stittsville, N.Y. 1894. Educated: Amherst College, D.H.L. (Hon.), Harvard University, M.A., Ph.D., Columbia University D.H.L. (Hon.) Secretary, Wisconsin Committee on Forest Land Use (1931). Chairman, Technical Committee on Regional Factors in National Planning and Development, National Resources Committee, U.S.A. (1935-1936).

GILSON, J.C., Associate Professor, Department of Agriculture, University of Manitoba. Born, Deloraine, Manitoba, 1926. Served in Second World War in Canadian Army, Artillery Corps. Educated: University of Manitoba, B.S.A. (1950), University of Manitoba, M.Sc. (1952), Iowa State College, Ph.D. (1954)—majored in agricultural economics. On staff, University of Manitoba, 1954 to present. President, Manitoba Institute of Agrologists, Chairman, Manitoba Crop Insurance Agency, Chairman, Canadian Council, International Conference of Agricultural Economists.

GRACE, N. H., Director, Research Council of Alberta since 1951. Born, India, 1902. Educated: University of Saskatchewan, B.A., M.A., McGill University, Ph.D. With Chemistry Division, National Research Council, Ottawa, 1931-1937, then with Division of Applied Biology, N.R.C. until 1951. Awarded M.B.E. in 1946. Fellow, Chemical Institute of Canada.

GRAHAM, JOHN F., Professor of Economics and head, Department of Economics and Sociology, Dalhousie University. Born, Calgary, 1924. Educated: University of British Columbia, B.A., Columbia University, A.M., Ph.D. On staff, Dalhousie University since 1949. Economics Affairs Officer, U.N. Headquarters, 1949-1950 summers. General Editor, Atlantic Provinces Studies, sponsored by Social Science Research Council of Canada. Presently completing a study of provincial-municipal fiscal relations and economic development, including case study of Nova Scotia.

GIFFEN, R. NORMAN, Associate Planner, Edmonton District Planning Commission. Born, North Vancouver, B.C. 1921. Educated: University of Alberta, B.Sc. and M.Sc. in Agriculture. On staff of Assessment Branch, Department of Municipal Affairs, 1952-1953. Joined staff of Edmonton District Planning Commission in 1953.

GOURDEAU, ERIC, Assistant Director of Planning, Department of Natural Resources since May, 1961. Born, Quebec City, 1924. Educated: Laval University, B.A. (1945), Forestry Engineer (1951), Economist (1956), Member, Quebec Forestry Association. Consultant in forestry engineering, 1953-1960.

GRENIER, FERNAND, Professor, Laval University, economic and human geography. Born, East Broughton, P.Q. 1927. Educated: Laval University, B.A. also M.A. in history and geography. Graduated in advance studies in history. Also from Sorbonne University, Paris, in geography, (1955). Editor of "Cahiers de géographie du Québec".

GRINDLEY, F. L., Director of Water Resources, Alberta Department of Water Resources since 1954. Born, Douglas, England, 1904. Educated: University of Alberta, B.A. (1925) and B.Sc. (C.E.) 1926. Resident Engineer, C.N.R., 1926-1930. With Alberta Department of Highways during various periods until 1935. Joined staff P.F.R.A. 1935. Joined Alberta Department of Resources, 1938. Has made extensive studies on headwater storage on the Saskatchewan and other Alberta rivers.

GROSE, R. E., Deputy Minister, Manitoba Department of Industry and Commerce. Born, Virden, Manitoba 1915. Educated: United College, Winnipeg, B.A. Served in Second World War with Canadian Army. Awarded M.B.E. Administrative Officer to Deputy Minister of Mines and Resources, Ottawa then Assistant Deputy Minister and Director, Department of Industry and Commerce, Winnipeg. Executive Director, Manitoba Development Authority.

GUSHUE, RAYMOND, President and Vice-Chancellor Memorial University of Newfoundland since 1952. Born, Whitbourne, Newfoundland. Educated: St. John's Methodist College. Dalhousie University, (Gold Medal in Law) LL.B. Member of Bars of Nova Scotia and Newfoundland. One of first Canadian Commissioners to the International Commission on Northwest Atlantic Fisheries. Member of Royal Commission on Canada's Economic Prospects 1955.

ORMAN, E. M., Deputy Minister, P.E.I. Department of Fisheries. Born, Welland, Ontario, 1914. Educated: St. Dunstan's University. Has been a fisheries cannery manager and a fisheries extension fieldman. Chairman, P.E.I. Fishermen's Loan Board 1949 to 1959. President, P.E.I. Industrial Corporation.

GOSSE, E. M., Deputy Minister, Department of Fisheries, Newfoundland since 1956. Born, Spaniard's Bay, Newfoundland, 1912. Educated: Prince of Wales College, also Memorial University College, St. John's. Manager of fishing firm 1931-1936. On staff Newfoundland Fisheries Board 1936-1940. Served in Second World War with R.A.F. Trade representative in Jamaica, W.F. for Newfoundland Fisheries Board, 1946-1949. Trade Commissioner for Canada Department of Trade and Commerce in Jamaica, 1950-1953. Member, Newfoundland Fisheries Board.

HARE, F. KENNETH, Chairman, Geography Department, McGill University. Born, Salisbury, England, 1919. Educated: University of London, B.Sc., University of Montreal, Ph.D. From 1941-1945 with British Meteorological Service. Since 1945 on staff of McGill University. Member of its Senate. Vice-Chairman of Arctic Institute of North America. Major activities have included physiographic and vegetation surveys in Labrador-Ungava. More recently engaged in meteorological research in the Arctic stratosphere and mesosphere.

HARPER, THOMAS A., Assistant Director, Wildlife Branch, Department of Natural Resources, Province of Saskatchewan since 1957. Born, Alsask, Saskatchewan. Educated: University of Saskatchewan, B.S.A., Pennsylvania State University, M.Sc. Manager, Saskatchewan Provincial Game Breeding Station 1948-1952. On staff, Saskatchewan Wildlife Branch as Wildlife biologist, 1952-1957. Major activities related to upland game management and habitat development.

HARRISON, F. A., Vice-President—(Woodlands) Canadian International Paper Company since 1960. Born, Mungerville, New Brunswick, 1902. Educated: Mungerville schools and Horton Collegiate Academy, Wolfville, N.S.; University of New Brunswick (studied forestry). Joined Canadian International Paper Company in 1926 as timber cruiser. Resident Manager at Noranda in 1939. Assistant Manager, Woodlands, in 1949. President, Miramichi Lumber Co. Ltd. Vice-President and Director, New Brunswick International Paper Company.

HAWTHORN, HARRY BERTRAM, Head, Department of Anthropology, University of British Columbia. Born, Wellington, New Zealand, 1910. Educated: University of New Zealand, B.A. B.Sc., M.Sc., Yale University, Ph.D. On staff of the University of British Columbia 1947 to present as Professor of Anthropology. Director of the Museum of Anthropology in 1947, Director of Indian Research Project 1954-1955, Director of the Institute of Social and Economic Research 1956-1958. Vice-President of the Canadian Political Science Association 1953-1955. Member of the Canadian Social Science Research Council 1956-1959. Guggenheim Fellowship 1959, Percy Smith Medal for Anthropological Research, 1961. Fellow of the Royal Society of Canada, 1956.

HENDERSON, GAVIN, Executive Director, Conservation Council of Ontario since 1952. Born, Liverpool, England, 1911. Educated: Graduate of Wye Agricultural College, London University, 1931. Came to Canada in 1934. Joined the Conservation Council of Ontario in capacity of Secretary, 1932.

HIGGS, K. G., Director of Operations, Metropolitan Toronto and Region Conservation Authority since 1960. Born, Toronto, 1929. Educated: University of Toronto B.Sc.F. (1952). Field Officer with the Ontario Department of Commerce and Development, Conservation Branch. Assigned to Humber Valley Conservation Authority and to the Metropolitan Toronto and Region Conservation Authority.

HOGGE, H. L., Provincial Sanitary Engineer, Alberta Department of Public Health since 1954. Born, Okotoks, Alta. 1920. Educated: University of Alberta, B.Sc. in chemical engineering (1950). On staff of Alberta Department of Public Health, 1950-1953, including assessment of water pollution in Alberta rivers. Municipal Utilities Supervisor, 1953-1954.

HOOD, WM. C., Professor of Political Economy, University of Toronto. Born, Yarmouth, Nova Scotia, 1921. Educated: Mount Allison University, B.A., University of Toronto, M.A., Ph.D. Post-doctoral study, University of Chicago. Served in Second World War with R.C.A.F. as meteorologist. On staff, University of Saskatchewan. Was Assistant Director of Research, Royal Commission on Canada's Economic Prospects. Summer of 1961 on U.N.E.S.C.O. mission to Sierra Leone.

HULL, ROBERT J., President and Director, Cities Service Oil Co. Ltd. since 1957. Born, Adams, Mass., 1901. Educated: Mass. Institute of Technology, B.S., Boston District Manager, Crew Levick Co. 1931-1936. Assistant General Sales Manager, Cities Service Oil Co., New England Division, 1938-1941. Sales Manager, 1946-1948. Marketing Co-ordinator, Cities Service Petroleum Inc. 1951-1957. Came to Canada in 1956. President and Director, Cities Service Refining (Canada) Ltd.

JENKINS, W. A., Associate Director, Nova Scotia Department of Agriculture and Marketing since 1952. Born, New York, 1916. Educated: Nova Scotia Agricultural College, graduation (1938), McGill University, B.Sc. (1942), Cornell University, M.Sc. (1947), Harvard University, Dr. P.A. (1961). Served overseas (First Canadian Parachute Battalion) in Second World War. Farm Manager 1938-1940. Currently President, Canadian Society of Rural Extension.

JOHNSON, A. W., Deputy Provincial Treasurer of Saskatchewan since 1952. Born, Saskatchewan, 1923. Educated: University of Saskatchewan, B.A. (1942), University of Toronto, M.A. (1945), Harvard University, M.P.A. (1950). Worked as Adult Education Representative, Department of Education 1945 to 1946, then as Administrative Analyst and later as Director in the Budget Bureau. Member, Board of Governors, University of Saskatchewan. Saskatchewan Representative on the Dominion-Provincial Continuing Committee on Fiscal and Economic Matters.

KALMAKOFF, MICHAEL, General Manager, Saskatchewan Timber Board since 1950. Born, Saskatchewan 1909. Educated: University of Saskatchewan, B.Acc., B. Ed. Institute of Chartered Accountants, Sask., C.A. High School and Commercial teaching until 1942. With Wartime Prices and Trade Board as Deputy Administrator (Processed Fruits and Vegetables) 1942-1946. Treasurer, Government Finance Office, Regina, 1946-1950, also a Director of Crown Enterprises.

KEENLEYSIDE, HUGH L., Member British Columbia Energy Board. Born, Toronto 1898. Educated: University of British Columbia (B.A.), Clark University (M.A., Ph.D.). Served on staff, Department of History, U. B.C. 1925-1927. Joined External Affairs Department 1928. Ambassador to Mexico. Deputy Minister of Mines and Resources Department, Ottawa, 1947-1950. Director-General U.N. Technical Assistance Administration 1950-1958. Member (1960) Board of Director, Resources For The Future.

KENDALL, DOUGLAS N., Vice-President, Hunting Associates Limited. Born, Oporto, Portugal, 1914. Educated: Ampleforth College, Eng. 1924-1932, Oxford University, 1933-1934. Royal Geophysical Society, course in ground survey methods, 1935. Obtained pilot's licence, 1935. Served in Second World War as Chief Technical Officer, RAF Central Photographic Interpretation Unit. Awarded O.B.E. and V.S. Legion of Merit.

KINGSTON, JAMES T. B., Economist, Resource Industries Division, Economics Branch, Department of Trade and Commerce. Born, Saint John, N.B. 1923. Educated: Saint John Schools, University of New Brunswick, B.Sc. (1948), Yale University, M.F. (1950), N.Y. State College of Forestry, teaching fellow (1950-1951). With Bureau of Economics and Statistics, B.C. Department of Industrial Development, Trade and Commerce, 1952-1956. With Forest Economics Branch, F.A.O., Geneva, Switzerland, 1956-1960.

KRISTJANSON, G. ALBERT, Extension Sociologist and Economist, Manitoba Department of Agriculture from 1959. Born, Gimli, Manitoba, 1923. Educated: Ontario Agricultural College, B.Sc.A. (1950) in Agricultural Economics, University of Wisconsin (Sociology) Ph.D. 1953. Major research work has been in fields of extension evaluation, population and gerontology.

KRUEGER, RALPH R., Associate Professor and Chairman, Department of Geography, Waterloo University College since 1959. Born, Ontario, 1927. Educated: University of Western Ontario, B.A. and M.A. (Geography) Indiana University, Ph.D. (Geography). Member of City of Kitchener Planning Board. Studied urban blight in London, Ontario and land-use conflict in Niagara Fruit belt.

LAIDLAW, A. F., National Secretary. Co-operative Union of Canada since 1958. Born, Port Hood, Nova Scotia. Educated: St. Francis Xavier University, University of Toronto, Doctor of Education, 1958. Associate Director, Extension Department of St. Francis Xavier University for 14 years. In 1952 studied university extension and co-operative education in parts of Europe. In 1959 a consultant for I.L.O. at Naples Conference. Named to central committee, international Co-operative Alliance in 1960. Director, Co-operative Life Insurance Company, 1950-1954. Presently a director of C.M.H.C. and on executive committee, Canadian Association for Adult Education.

LARKIN, PETER A., Professor of Zoology and Director, Institute of Fisheries, University of B.C. Born, Auckland, New Zealand, 1924. Educated: Balfour Technical School, Regina College, University of Saskatchewan, M.A. (1946) Oxford University, D. Phil. (1948). Chief Fisheries Biologist, 1948-1955, Assistant Professor, U.B.C. 1948-1955—Director, Institute of Fisheries, 1955—Professor, Zoology Department 1959—Member, North American Wildlife Society, American Association for Advancement of Science, Fisheries Development Council, member, Board of Governors, Vancouver Public Aquarium.

LASH, H. N., Deputy Commissioner, Toronto Planning Board. Born, Toronto. Educated: McGill University, B.A. (1947) in economics and political science. M.A. (1949) in geography. Held C.M.H.C. fellowship in community planning. Lecturer, McGill University in geography 1949-1950. Director of Town and Rural Planning, Alberta Department of Municipal Affairs, 1950-1957. Director, Long Range Planning Division, City of Toronto Planning Board 1957-1960. Deputy Commissioner of said Board, 1960. Member: Town Planning Institute of Canada, Institute of Public Administration of Canada.

LEAHEY, ALFRED. Associate Director (Soils) Research Branch, Canada Department of Agriculture, Ottawa. Born, Belfast, Ireland, 1900. Educated: University of Alberta, B.Sc., M.Sc. University of Wisconsin, Ph.D. Farmed in Alberta until 1925. On Department of Soils staff, University of Alberta 1925-1936. On staff Experimental Farm Service, Canada Dept. of Agriculture 1936-1959 when Research Branch formed. Chairman, National Soil Survey Committee since 1940.

LEDERMAN, WILLIAM R., Professor and Dean, Faculty of Law, Queen's University since 1958. Born, Regina, Sask., 1916. Educated: University of Saskatchewan, B.A. (1937), LL.B. (1940), Rhodes Scholar, 1939, Oxford, B.C.L. (1948), Vinerian Scholar, Oxford (1948). Professor of Law, University of Saskatchewan 1945-1946 and 1948-1949; of Dalhousie University, 1949-1958. Visiting Professor of Law, New York University School of Law, 1957, McGill University, 1960-1961. Special subjects, Constitutional Law, Private International Law.

LEMELIN, CHARLES, Professor of Economics, Laval University. Born, Levis, P.Q., 1912. Educated: Laval University, B.A. (1938); B.Sc. (Ag.) 1942; Harvard University, M.P.A. (1949) and Ph.D. (Economics), 1951.

LESSARD, JEAN-CLAUDE, President, Quebec Hydro-Electric Commission since 1957. Born, Granby, 1904. Educated: St-Mary's College, Montreal, University of Montreal, B.A. (1924). Commercial School, McGill University, took courses at Harvard University with a Province of Quebec scholarship. M.B.A. (1928). Studied transportation problems in Western Canada and in Chicago. On staff Economics Bureau, C.N.R. Montreal for 10 years. In 1939 to Office Board of Transport Commissioners. Named Deputy Minister, Department of Transport, 1948. Appointed Vice-President, St. Lawrence Seaway Authority, 1957.

LEWIS, HARRISON F., Chairman, Nova Scotia Resources Council. Born, Sag Harbor, N.Y. 1893. Educated: Yarmouth County Academy, Nova Scotia Normal College, Acadia University, B.A. (1917), University of Toronto, M.A. (1926), Cornell University, Ph.D. (1929) with major in ornithology. Honorary D.Sc. from Acadia University in 1955. Served in Canadian Army in First World War. Chief Federal Migratory Bird Officer for Ontario and Quebec, 1920-1943. Head of Canadian Federal Wildlife Protection and Management Agency 1944-1952. Retired as first Chief, Canadian Wildlife Service, 1952. Editor, "Canadian Field Naturalist" 1922-1925. Wildlife Research Scientist, Nova Scotia Department of Lands and Forests, 1955.

LOUGHREY, ALAN G., Head, Game Management Service, Northern Administration and Lands Branch, Department of Northern Affairs and National Resources. Born, Toronto, 1927. Educated: University of Western Ontario, B.Sc., M.Sc. On staff, Canadian Wildlife Service, Department of Northern Affairs and National Resources as Eastern Arctic Biologist 1951-1957. Predator Control Officer for N.W.T. 1957-1959. Transferred to Northern Administration Branch as Head, N.W.T. Game Management Service, 1959. Major fields of activities include wildlife management and research studies of caribou and wolves. Author of a life history study of the Atlantic Walrus and a review of N.W.T. game legislation. A Fellow of the Arctic Institute of North America.

LUSSIER, LOUIS-JEAN, Member of firm Omer Lussier and Associates. Forestry and Industrial Engineers, Quebec City. Born, Giffard, P.Q. 1926. Educated: Laval University, Bachelor, Applied Sciences (1951), M.Sc.F. (1953). Studied in Sweden, 1954. Syracuse University, Ph.D. (1957). Since 1955 professor of forestry operational research, Laval University. Director, Operational Research Service, Quebec, North Shore Paper Company 1957-1961. Consulting Engineer in Quebec since March, 1961.

MACDONALD, WILLIAM A., Director of Public Relations, Canadian Broadcasting Corporation, Ottawa, since 1960. Born, Millet, Alberta, 1907. Educated: Public and high schools, Vancouver, B.C. and at University of Washington, Seattle. Joined National Film Board 1942 serving as editor, director and producer until 1945. Information officer in federal departments, 1950-1953. Director, Information Services, Canada Department of Public Works, 1953-1958. Public Relations Officer for Prairie Provinces, C.B.C. 1958-1959. For 30 years has been writer and broadcaster in outdoors recreation and wildlife conservation fields.

MACKENZIE, M. W., President of Chemcell Limited since 1959. Born, Victoria, B.C. 1907. Educated: Lakefield, Port Hope, and McGill University, B. Comm (1928). Joined firm McDonald, Currie and Company, Montreal. In 1935 became partner in firm. In 1939 joined Foreign Exchange Control Board. Received C.M.G. for war services. In 1945 appointed Deputy Minister, Trade and Commerce. Deputy Minister, Defence Production, 1951. In 1952 joined Celanese Corporation of America as Executive Vice-President in charge of its Canadian operations. Became President in 1954.

MALAHER, GERALD W., Director of Game, Department of Mines and Natural Resources, Province of Manitoba since 1955. Born, Shropshire, Eng., 1903. Educated: English public school. University of New Brunswick, B.Sc.F. (1931). On fire protection staff, Dominion Forest Service 1927-1930. With Manitoba Forest Service, 1930-1941. To Game and Fisheries as Supervisor, Northern Manitoba, 1942. Director, Game and Fisheries, Manitoba 1946.

MARCHAND, JEAN, President, The Confederation of National Trade-Unions since March, 1961. Born, Champlain, 1918. Educated: St-Jean Baptiste Academy, Commercial Academy, Quebec City. Laval University. Faculty of Social Sciences. Organizer, National Federation of Pulp and Paper. Active in labour movement since 1942. Elected Secretary General of the Confederation of National Trade Unions, 1947. Delegate to the International Labour Conference, Geneva, 1955.

MASON, CLARENCE A., Director of Conservation, Department of Lands and Forests, Nova Scotia since 1957. Born, Springfield, N.S. 1901. Educated: Acadia University, B.A. (1926). On staff N.S. Department of Lands and Forests as Superintendent of Game Sanctuaries until 1934. Engaged in lumber and pulpwood business in N.S. 1934-1957.

McCALLA, A. G., Dean, Faculty of Graduate Studies, University of Alberta since 1957. Born, near St. Catharines, Ont., 1906. Educated: University of Alberta, B.Sc. (Agriculture) and M.Sc., University of California, Ph.D. Post-doctoral year at Uppsala University, Sweden. Raised on farm near Edmonton. Research Assistant, Department of Field Crops U. of A., 1933-1941. Professor of Field Crops, 1941-1944. Head of Plant Science Department, U. of A. 1944-1951. Dean, Faculty of Agriculture 1951-1959. Member, Research Council of Canada 1950-1956.

McEWEN, E. R., Deputy Head, Recreation Branch, R.C.A.F., Ottawa. Educated: University of Manitoba. Served in Second World War with R.C.A.F. In 1943, placed in charge of R.C.A.F. Education Services in Middle East. At end of war appointed Associate Director, Canadian Youth Commission. For five years he headed Recreation Division, Canadian Welfare Council. Member: Ottawa Welfare Council and Youth Services Bureau, Ottawa Municipal Recreation and Parks Committee.

McKINNON, FINDLAY S., Chief Forester of British Columbia since 1959. Born, Nanaimo, B.C. 1904. Educated: Harvard University, M.Sc.F. (1932); attended University of California for special studies in forest research, 1933. Joined B.C. Forest Service Economics Division, 1936. Made Assistant Chief Forester, 1952.

MEADE, G. ED., Secretary-Manager, B.C. Federation of Fish and Game Clubs. Born, England 1914. Educated: England and Canada with post-war short course at University of Paris. Joined Advertising Staff, Vancouver Province, 1934. Overseas service education and public relations, R.C.A.F. Fish and Game columnist, Vancouver Province until 1956. Editor of Northwest Sportsman, freelance writer and radio broadcaster. Member of executive, B.C. Natural Resources Conference since 1956, president 1960-1961.

MERCIER, ERNEST, Deputy Minister, Quebec Department of Agriculture since 1960. Born, Notre-Dame-du-Rosaire 1914. Educated: Six years at St-Victor-de-Beauce and Nicolet Seminaries and at Ste-Anne-de-la-Pocatière College, B.A. (1939). At High School of Agriculture at Ste-Anne-de-la-Pocatière obtained bachelor of agricultural science with great distinction. Joined Quebec Department of Agriculture in 1943. Cornell University, Ph.D. (1946). In 1950 joined Canada Department of Agriculture, Experimental Farm, Lennoxville. In 1952 became farm manager there. First Director, School of experimental sciences, Sherbrooke University. Former President, Corporation of Quebec Agronomes. In 1955 and 1957 he was a delegate at F.A.O. Conferences.

MONK, DAVID R., Director, Public Information and Education Division, B.C. Forest Service since 1958. Born, Victoria, B.C. 1920. Educated: Victoria High School. Served in Second World War overseas with Canadian Army. Joined B.C. Forest Service (Information and Education Division) 1946. Promoted to Public Information Officer, 1953. Member, Canadian Public Relations Society and of Canadian Institute of Forestry.

MOORE, A. MILTON, Associate Professor, University of British Columbia, Department of Economics and Political Science since 1959. Born, Lancashire, Eng. Educated: elementary and public schools, Windsor, Ont. Queen's University, B.A. honours, University of Chicago, M.A. Economics. Served with R.C.A.F. in Second World War. Research Associate, Canadian Tax Foundation. Economist with Canadian Pulp and Paper Association.

MORROW, CLARENCE JOSEPH, President and Treasurer, Ocean Fisheries Limited and National Sea Products Limited, Halifax, since 1953. Born, Annapolis Royal, N.S. 1895. Educated: Annapolis Royal Academy. Accountant, Royal Bank of Canada. President, Lunenburg Sea Products Limited 1942 to date.

MURRAY, P. J., Deputy Minister of Agriculture and Co-operatives, Department of Mines, Agriculture and Resources, Newfoundland. Born, St. John's, Newfoundland, 1917. Educated: Macdonald College, B.Sc. (1938). On staff Newfoundland Department of Natural Resources as agricultural fieldman; conducted soil surveys in province. In 1950 appointed Director of Agriculture and later became Deputy Minister of Resources. Member of Newfoundland Royal Commission on Agriculture, 1957.

NASH, C. W., Director of Load Development, B.C. Power Commission since 1955. Born, England, 1917. Educated: University of British Columbia, B.A.Sc. Served in Second World War as a R.C.A.F. pilot. On staff, B.C. Power Commission since 1945 as engineer, then district manager until 1955. President, B.C. Natural Resources Conference; member, Water Advisory Group, "Resources For Tomorrow" Conference.

OLAFSON, ELLAF A., Director, Conservation and Development Branch, Saskatchewan Department of Agriculture, since 1959. Born, Shaunavon, Sask. 1915. Educated: University of Saskatchewan B.E. Ag. Eng. (1942); Utah State University B.S.-Civil Eng. (1947) and M.S. Civil Eng. (1948). Served with Canadian Army in Second World War. Instructor, Agricultural Engineering Department; University of Saskatchewan 1945-1946. Chief, Drainage Division, P.F.R.A. 1948-1959. Loaned to F.A.O. as Irrigation and Drainage Specialist in Pakistan, 1953-1955.

OMAND, D. N., since 1958 Supervisor, Wildlife and Enforcement Section, Fish and Wildlife Branch, Ontario Department of Lands and Forests. Born, Toronto 1920. Educated: University of Toronto, B.A. (1942) and M.A. (Zoology) 1946. Since 1947 on staff of Ontario Department of Lands and Forests. Fisheries Biologist, 1947-1951. District Forester until 1958. Concerned at present with Wildlife Management programs and land use.

PARKER, JOHN S., Director General, Administration Branch, Canada Department of Agriculture. Born, Minneapolis, 1915. Educated: University of Saskatchewan, B.E. in Agricultural Engineering. On staff, Canada Department of Agriculture, Experimental Farms Service, Swift Current, 1937-1949. Director, Maritime Marshland Rehabilitation Administration, 1949-1961. Chairman, Agricultural Institute of Canada Committee on Conservation, 1954-1955.

PIGOTT, ARTHUR V., Director, since 1960 Canadian Association for Adult Education. Born, Winnipeg. Educated: University of Manitoba, B.A. Post-graduate work at Northwestern University, Illinois. Former assistant superintendent of education for Winnipeg schools. Former Vice-President and Director of Community Relations, Social Planning Council of Metropolitan Toronto.

PLEVA, EDWARD G., Professor and Head of Department of Geography, University of Western Ontario since 1938. Born, Minneapolis, Minn., 1912. Educated: University of Minnesota, Syracuse University, B.A., M.A., Ph.D. Major fields of interest: geography and planning, geographic basis of resource development problems, geography in education. Editor, Canadian Oxford Atlas and McGraw-Hill series in Canadian Geography. Chairman, City of London Planning Board. Technical Consultant to Ontario Committee on Land Use, Conservation and Rehabilitation.

POMERLEAU, RENE, Head, Forest Pathology Investigations, Canada Department of Forestry, Forest Entomology and Pathology Branch, Sillery, P.Q. Born, Saint-Ferdinand, P.Q., 1904. Educated: Laval University, B.S.A., McGill University, M.Sc., University of Montreal, D.Sc. Graduate studies, La Sorbonne, Paris and Ecole Nationale des eaux et forêts, Nancy, France. Forest pathologist, Quebec Department of Lands and Forests, 1930-1952. Professor of Forest Pathology and mycology, Laval University since 1940. Fellow, Royal Society of Canada, 1948. Chairman, Symposium on Conservation of renewable natural resources, Quebec City, 1952.

POYSER, E. A., of the Manitoba Department of Agriculture and Conservation. Born, Manitoba, 1927. Educated: University of Manitoba, B.S.A., M.Sc. Farmed until 1948. Joined Manitoba Soil Survey 1948. With Experimental Farm Service, Canada Department of Agriculture, 1950-1957. With Manitoba Department of Agriculture and Conservation 1957-1960. Major fields of work—soil classification and cartography, soil conservation, land use planning.

PREVOST, GUSTAVE, President of Quebec Water Commission, 1961. Born, St. Janvier in 1908. Educated: Quebec Seminary, Colleges St. Laurent and Ste. Marie, B.Sc. and recipient of Archambault Medal for work on conservation of natural resources. Director, Quebec Biological Bureau, Department of Game and Fisheries. Member New York Academy of Sciences, American Fisheries Society. Former President, Northeast Wildlife Society.

PRITCHARD, ANDREW LYLE, Director, Conservation and Development Service, Canada Department of Fisheries since 1950. Born, Alcove, Quebec, 1904. Educated: University of Toronto, B.A., M.A., Ph.D. On staff, Fisheries Research Board of Canada, Nanaimo, B.C. 1928-1948. Past Chairman, Great Lakes Fishery Commission. Past President, American Fisheries Society.

PUTNAM, R. M., Deputy Minister of Agriculture for Alberta since 1955. Born, Medicine Hat, 1905. Educated: University of Alberta, B.A. (1931) B.Sc. in Agriculture (1933). Employed as fieldman on staff Alberta Department of Agriculture 1933-1937. University of Wisconsin, M.Sc. (1938). In 1958 appointed Director, Agricultural Extension Service, Alberta Department of Agriculture.

RAYNAULD, ANDRE, Professor and Head, Department of Economic Sciences, University of Montreal since 1958. Born, Province of Quebec, 1927. Educated: University of Montreal, Industrial Relations Section, 1951. Doctor of Economic Sciences, Paris, 1954. Assistant Professor, Department of Economic Sciences, University of Montreal, 1954-1958. Member of Social Science Research Council of Canada.

RICHARDSON, ARTHUR H., Chief Conservation Engineer, Conservation Branch, Ontario Dept. of Commerce and Development since 1944. Born, Toronto. Educated: Toronto public schools and secondary education by private tutor. McMaster University, B.A. (1915), M.A. (1916)—honour biology, Harvard University, S.M. Silv. (1920), Toronto University, F.E. (1945). Entered Forestry Branch, Ontario Dept. of Lands and Forests, 1920. Special lecturer in forestry, O.A.C. 1926-1940. Editor McMaster Monthly for two years. Founder of Forestry Chronicle and editor for ten years. Author of "The Ganaraska Report". Member: Canadian Institute of Forestry, Association of Professional Engineers of Ontario (Civil Branch), Professional Foresters of Ontario and honorary member, Soil Conservation Society of America.

RICKER, W. E., Fisheries Research Board of Canada, Nanaimo, B.C. Born, Waterdown, Ontario, 1908. Educated: public and high schools, North Bay, University of Toronto, B.A. (1930), M.A. (1931), Ph.D. (1936). With Fisheries Research Board of Canada as scientist in the sockeye salmon investigation 1931-1938. With International Pacific Salmon Fisheries Commission 1938-1939. Professor of Zoology, Indiana University 1939-1950. Editor of publications, Fisheries Research Board of Canada and consultant for the Board's biological investigations.

RISI, JOSEPH, Professor, Faculty of Surveying and Forestry, Laval University. Born, Ennetburgen, Switzerland, 1899. Educated: Secondary School, St. Michael College, Zug (1918), University of Fribourg, D.Sc. (1925), Professor of Organic Chemistry, Science Faculty, Laval University, 1925-1959, Professor of Chemical Technology of Wood, Faculty of Forestry, Laval University, 1959 to date. Past President, French-Canadian Association for Advanced Sciences. Member, Royal Society of Canada.

RIVERIN, ALPHONSE, Director, Economic and Scientific Research Branch, Quebec Department of Industry and Commerce. Born, Chicoutimi, 1923. Educated: Laval University, Master of Economic Sciences; New York University, Master of Business Administration, University of Paris, Doctor of Economic Sciences. Chartered Accountant. Has been Professor of Finance and Economics, Ecole de Commerce and Assistant Professor in Economics, Law School, Laval University.

ROBERTS, JAMES A., Deputy Minister of Trade and Commerce. Born, Toronto, 1907. Educated: University of Toronto Schools and Jarvis Collegiate Institute. With Sun Insurance Office Ltd. 1926-1937. With Stewart Automatic Freezers Ltd. 1937-1939 and with Mercury Mills Ltd. 1946-1953. Was President, James A. Roberts Limited 1951. President of Canadian Exporters Association. Appointed Associate Deputy Minister of Trade and Commerce, 1958. Served in Second World War with Canadian Army.

ROBILLARD, CLAUDE, Director, Montreal City Planning Department since January, 1961. Born, Montreal, 1911. Educated: St. Mary's College, 1923-1931, McGill University, degree in engineering (1935). Was with Bell Telephone Company 1935-1942, Quebec Power Company 1942-1944. Assistant Transit Controller, Department of Munitions and Supply in 1944. In 1942 he was appointed Assistant to the director of Public Works, City of Montreal. In May 1951 he was named Engineer-Superintendent of the Parks and Recreation Division of the Public Works Department. This division was established as the Parks Department in 1953 and Mr. Robillard was appointed its director. President of American Institute of Park Executives, 1957-1958. Director of the Montreal Symphony Orchestra and of the Museum of Fine Arts.

ROBERTSON, DALTON, Associate Editor, The Financial Post since 1959. Born, Providence, R.I., 1927. Educated: University of Toronto (political science and economics) 1945-1949. Graduate work, University of Chicago, 1950. Joined federal civil service in 1950 on administrative training program, later became an economist, Department of Labour, Ottawa. In 1953 joined Canadian Business Magazine as associate editor. Joined the Financial Post, Toronto, 1955.

ROBINSON, IRA MILES, Assistant Professor of Planning, University of British Columbia since 1952. Born, New York City, 1924. Educated: Christopher Columbus High School, N.Y., Wesleyan University, B.A. (1946), University of Chicago, M.A. (1950), Ph.D. (1961). Served with U.S. Navy in Second World War. Director of Planning, South Side Planning Board (Chicago) 1950-1952. Member: Executive Council, Planning Institute of B.C.

ROUSSEAU, L. Z., Dean of Faculty of Surveying and Forestry, Laval University since 1954. Born, Beauport, 1901. Educated: Laval University, Bachelor of Surveying (1924), Forestry Engineer (1925). Practised private surveying 1925-1935. Chief, Land Classification Service, Quebec Department of Colonization 1936-1940. Career professor since 1940. Delegate of Laval University to the 13th International Congress, Forestry Research Institute, Vienna, 1961.

SEWELL, W. R. D., Economist, Water Resources Branch, Department of Northern Affairs and National Resources since 1957. Born, Rock Ferry, Cheshire, England, 1931. Educated: Elementary and high schools, London, England, also Ecole Normale de Chartres, France, University of London, honours degree in economics (1954), University of Washington, M.A. (1955), Economic Research with Bureau of Economics, B.C. Department of Trade and Industry, 1956-1957. Vice-President, B.C. Natural Resources Conference and member, Canadian Association of Geographers.

SCOTT, ANTHONY, Professor of Economics, University of British Columbia. Born, Vancouver, 1923. Educated: University of British Columbia, B.A., Harvard University, M.A., University of London, Ph.D. (1953). Instructor, University of London 1950-1953. On staff of U.B.C. 1954 to present. On research staff, Royal Commission, Canada's Economic Prospects 1955-1956

SCOTT, FRANK R., Q.C., Dean, Faculty of Law, McGill University. Born, Quebec City, 1899. Educated: Bishop's College, B.A., Magdalen College, Oxford, B.A.; B. Litt.; McGill University, B.C.L. Hon. L.L.D. (Dalhousie and Manitoba), Awarded Guggenheim Fellowship 1940. Fellow of Royal Society of Canada, 1947. Has written widely on Canadian constitutional questions.

SHARP, MITCHELL, W., Vice-President, Brazilian Traction, Light and Power Company, Ltd. since 1958. Born, Winnipeg, 1911. Educated: Winnipeg and St. James public schools, University of Manitoba, B.A. (1934). Post-graduate studies Manitoba, and London School of Economics. With Grain Trade Press, Winnipeg, 1925. With Sanford Evans Statistical Service, 1926-1936. With James Richardson & Sons Ltd., 1937-1942. With federal Department of Finance 1942-1951. Department of Trade and Commerce, 1951-1958. Deputy Minister of Trade and Commerce, 1957.

SINCLAIR, HONOURABLE JAMES, President, Fisheries Association of B.C., until recently. Born, Banff, Scotland, 1908. Educated: University of British Columbia (B.C. Rhodes Scholar, 1928), attended Oxford and Princeton Universities. Served in Second World War with R.C.A.F. Member of Parliament 1940-1958. Parliamentary Assistant to Minister of Finance, 1948-1952. Minister of Fisheries, 1952-1957. Member of British Columbia Energy Board and B.C. Research Council.

SISAM, JOHN W. B., Dean, Faculty of Forestry, University of Toronto since 1947. Born, Springhill, N.S., 1906. Educated: Aberdeen High School, Moncton, and Normal School, Fredericton, N.B. University of New Brunswick, B.Sc.F. (1931); Yale University, Master of Forestry (1937). Director, Imperial Forestry Bureau, Oxford, 1939-1945. Associate Professor, then Dean of Faculty of Forestry, University of Toronto, 1945 to present. President, Canadian Institute of Forestry, 1955-1957. President, Ontario Professional Foresters Association, 1957-1959.

SMITH, G. CLAUDE, Director of Town Planning, Department of Industry and Natural Resources, Prince Edward Island. Born, Cascumpec, P.E.I. Educated: West Kent School and Provincial Government Agriculture courses. Operated a dairy farm and fur farm. Former member, Provincial Milk Board. Director, Town Planning for Prince Edward Island.

SMITH, GEORGE R., Director, Chemistry, Soils and Fertilizer Services, Nova Scotia Department of Agriculture and Marketing since 1947. Born, Scotsburn, N.S. 1910. Educated: Dalhousie University, B.Sc. (1932); M.Sc. (1934); McGill University Ph.D. (1939). Appointed Assistant N.S. Provincial Chemist 1934; Nova Scotia Provincial Chemist, 1941.

SMITH, P. J., Assistant Professor of Geography, University of Alberta since 1959. Born, New Zealand, 1931. Educated: University of New Zealand, B.A., M.A. Diploma of Town and Regional Planning, University of Toronto. On staff, Planning Department, City of Calgary 1956-1959. Major research in fields of urban surveys and urban planning problems.

SPINKS, JOHN W. T., President, University of Saskatchewan since 1959. Born, Norfolk, England, 1908. Educated: University of London, B.Sc. (1928) Ph.D. (1930). Degree of D.Sc. conferred by University of London (1957). Came to Canada in 1930, joining the University of Saskatchewan staff as Assistant Professor. Head Chemistry Department, 1948. Dean of Graduate Studies, 1949. Served in Second World War. Awarded, M.B.E., Chemist with joint U.K.-Canadian Atomic Research Project, 1944-1945. Member, National Research Council and of Canada Council.

STAIRS, HAROLD F., Director, Field Husbandry Branch, New Brunswick Department of Agriculture. Born, East Waterville, N.B. 1904. Educated: McGill University B.Sc.A. School Principal 1924-1943. Served in Second World War with Canadian Army. Has been with Field Husbandry Branch since 1949. Is now also Secretary, Farm Settlement Board, Acting Superintendent of Immigration and Chairman, Farm Labour Committee.

STEACIE, E. W. R., President, National Research Council (Canada) since 1952. Born, Westmount, P.Q., 1900. Educated: McGill University, B.Sc., M.Sc., Ph.D. Associate Professor, Chemistry, 1937. Joined National Research Council in 1939 as Director, Division of Chemistry. Appointed Vice-President (Scientific) 1950. Made O.B.E. in 1946 for services in organizing Canadian chemistry for war purposes. Fellow, Royal Society of Canada.

STEPHENS, DONALD M., Chairman of the Board, Manitoba Hydro. Born, Reston, Man. 1903. Educated: University of Manitoba, B.Sc. (C.E.) 1931; D. Eng. (Hon.) Clarkson College (1954) Engineer, Mines and Natural Resources Department, Manitoba 1933-1938. Deputy Minister of Mines and Natural Resources 1938-1951. Chairman and General Manager, Manitoba Hydro-Electric Board, 1951-1961. Chairman of Manitoba Hydro from April 1, 1961. Member of Canadian Section, International Joint Commission. Director of Atomic Energy of Canada Ltd. Represented Manitoba on Prairie Provinces Water Board, 1945-1951.

STEVENS, HOMER JOHN, Secretary-Treasurer, United Fishermen and Allied Workers' Union, Vancouver since 1948. Born, Ladner, B.C. 1923. Educated: Delta High School. Engaged in commercial fishing in B.C. waters 1936-1939, summer seasons. From 1940-1946 engaged regularly in commercial fishing. Served on Advisory Board of the International Pacific Salmon Fisheries Commission 1944-1949. Acted as Industry Adviser in the Canadian delegation which negotiated the Pink Salmon Treaty Amendments with the U.S.A. in 1956. Participated with the Canadian delegation at the London Conference on Costs and Earnings of Fishermen and Fishing Enterprises, under auspices of F.A.O. in 1958.

SUMMERS, William F., Associate Professor, Head of Geography Department, Memorial University of Newfoundland since 1960. Born, St. John's, Newfoundland, 1919. Educated: Dalhousie University, B.Sc. (Geology) 1946, McGill University, M.Sc. (Geography) 1948 and Ph.D. (Geography) 1957. Assistant Professor, Geography, at McGill University from 1950-1959. Director, Land Use Survey of Newfoundland, 1958-1959.

TAYLOR, Donald F., Chief Planner, Community Planning Branch, Ontario Department of Municipal Affairs, 1953 to present. Born, Saint John, N.B. 1926. Educated: University of New Brunswick, B.Sc. in Civil Engineering, 1947; post-graduate study at Mass. Institute of Technology, 1947-1949. Director, Planning Division, N.B. Department of Industry and Reconstruction, 1949-1953. Has had considerable association with formation of policy relative to new resource development towns in Northern Ontario.

THOMAS, ALAN M., Associate Director, Canadian Association for Adult Education. Born, Toronto, 1928. Educated: University of Toronto, B.A., Columbia University, M.A. Educational Representative, Copp Clarke Publishing Company 1949-1951. Assistant to The Director, C.A.A.E. 1953-1955. Associate Director, C.A.A.E. 1961.

TRACHTENBERG, SAMUEL, Executive Secretary, Manitoba Development Authority since 1959. Born, Roumania, 1919. Educated: University of Manitoba, B.A. (Honours) 1942; University of Toronto, M.A. Post-graduate studies at McGill University. Lecturer in Economics, University of Manitoba, 1947-1949 and at Carleton University, Ottawa. Economist in federal departments for several years.

TREMBLAY, RENE, Deputy Minister, Quebec Department of Industry and Commerce since 1960. Born, Luceville, 1922. Educated: primary schools, Luceville and classical studies at Rimouski Seminary 1936-1944. Laval University, B.A. with great distinction, (1944), Master of Economics with great distinction (1947), McGill University, University of Louvain, Belgium, diploma in economic sciences. Research work at Cambridge University, 1949-1950. In 1950 became professor, Economics Department, Faculty of Social Sciences, Laval University.

TRUEMNER, ROGER B., Director, Regional Development Branch, Department of Industry and Commerce, Winnipeg since 1959. Born, Toronto, 1928. Educated: University of Toronto, B.A. in Geography (1950) and Post-graduate work in Town and Regional Planning (1957). With Ontario Department of Planning and Development 1957-1959. With Ontario Department of Highways on planning 1950-1956.

TURNER, DAVID B., Deputy Minister of Recreation and Conservation for British Columbia. Born, Edinburgh, 1903. Educated: University of British Columbia B.S.A. (1933) B.A. (1936); M.A. (1944); Cornell University, Ph.D. (1947). Originator, B.C. Natural Resources Conference, Secretary 1948 to present. B.C. Director, Agricultural Institute of Canada, National Council, 1952-1954.

TWEEDDALE, REGINALD E., General Manager, New Brunswick Electric Power Commission since 1958. Born, Arthurette, N.B., 1914. Educated: University of New Brunswick, B.Sc. in Electrical Engineering. District Highway Engineer in N.B. 1935-1940. Served as radar officer in Second World War. Then entered engineering department, N.B. Electric Power Commission. Became Manager of operations, assistant chief engineer and first general manager. Director and former chairman, power committee, Atlantic Provinces Economic Council.

TYRRELL, Mrs. JOYCE M., Vice-chairman, Metropolitan (Toronto) Branch, Community Planning Association of Canada. Educated: McGill School of Physical Education; University of Toronto, B.A., Ontario College of Education; University of Toronto, Department of Architecture course in Town and Regional Planning. In 1955 headed the Canadian delegation as representative of the Canadian Association of Health, Physical Education and Recreation, at the International Congress on Recreation for Women held at the Sorbonne, Paris.

VAN LUVEN, A. LORNE, Vice-Chairman, Quebec Water Purification Board. After service overseas in Canadian Army in Second World War, graduated as a chemical engineer from University of Toronto in 1948. In past 13 years has gained engineering experience in industrial waste problems. Ten of these years with Canada Packers Ltd. (Toronto). In 1960 appointed Chairman, Engineering Institute of Canada, Sub-Committee on the use, conservation and pollution of water resources, now the E.I.C.-C.I.S.S. Joint Committee in that field of conservation.

WALSH, F. W., Deputy Minister of Agriculture for Nova Scotia since 1945. Born, Moncton, N.B. 1897. Educated: Nova Scotia Agricultural College 1915-1917, Ontario Agricultural College 1920-1922. University of Toronto, B.S.A. Served in First World War with R.A.F. Was superintendent of Agricultural Development over whole Canadian National Railways system 1929-1933. In 1933 was appointed Director of Marketing, N.S. Department of Agriculture and Marketing. O.B.E. Conferred in 1945. Doctor of Laws (honorary) St. Francis Xavier University, 1953.

WEEKS, ERNEST P., Director, Economic Studies Branch, Canada Department of Public Works, since 1954. Born, Mount Stewart, P.E.I., 1912. Educated: Mount Allison University, B.A. (honours in Economics), Oxford University (Rhodes Scholar), M.A., B. Litt., D. Phil. Instructor in Economics, Oxford University. During Second World War employed by British Ministry of Information. Executive Assistant to Assistant Deputy Minister, Department of Trade and Commerce and Member of Cabinet, Secretariat, Privy Council Office, Ottawa, 1948-1950. Director, Economics and Statistics Branch, Department of Defence Production, 1951-1954.

WHALEN, H. J., Associate Professor of Political Science, University of New Brunswick. Born, Bathurst, N.B. 1925. Educated: University of N.B., B.A. (1949); University of Alberta, M.A. (1951). Appointed Assistant Professor, University of N.B., 1954. Prepared A.T.E.C. submission to Royal Commission on Canada's Economic Prospects, 1955. Appointed Chairman, N.B. Potato Industry Commission, 1960.

WILSON, J. TUZO, Professor of Geophysics, University of Toronto from 1946. Born, Ottawa, 1908. Educated: University of Toronto, Princeton University, Carleton University and University of Western Ontario. Joined Geological Survey of Canada as Assistant Geologist, 1936. With Royal Canadian Engineers, 1939-1946. Member, National Research Council and Defence Research Board.

WILSON, JAMES W., Executive Director, Lower Mainland Regional Planning Board, British Columbia since 1951. Born, Scotland, 1918. Educated: Glasgow University, B.Sc., University of North Carolina, M.Sc., M.I.T., M.R.P. Civil Engineer with British Admiralty 1939-1945. In consulting work 1945-1946. Civil Engineer with B.C. Power Commission 1947-1948.

WONDERS, WILLIAM C., Born Toronto, Ontario, 1924. B.A. University of Toronto, M.A. Syracuse University, Ph.D. University of Toronto (all degrees in Geography); on staff of Department of Geography, University of Toronto 1948-1953; 1953 started Geography at University of Alberta, presently Professor and Head, Department of Geography at latter university. Has worked on soil and land use surveys through Southern Ontario for Conservation Branch, Ontario Department of Planning and Development. Has been Party Chief for Geographical Branch, Department of Mines and Technical Surveys on urban geography survey of Halifax and settlement survey in west-central Newfoundland. Has done field work in Queen Elizabeth Islands of the Canadian Arctic for Geographical Branch, Department of Mines and Technical Surveys and for Defence Research Board. Presently studying settlement in the Mackenzie Valley Area. Is Chairman of the Directorate, The Boreal Institute of the University of Alberta, and an executive member of the Edmonton Region Branch, Community Planning Association of Canada.

WOOD, V. A., Director of Lands, Department of Lands and Forests, Province of Alberta since 1941. Born, Cardston, Alberta, 1911. Educated: University of Alberta, B.Sc., M.Sc., University of Minnesota, Ph.D. On staff, agricultural section, Dominion Bureau of Statistics 1936-1941. Chairman, Provincial (Alberta) Parks Board 1954 to date. Served on committee for settlement of land in irrigation areas of Alberta. Also presently on Provincial Town Planning Board.

WRIGHT, T. G., Chief Forester, Canadian Forest Products Ltd., Vancouver since 1948. Born, Warren, Penn. 1916. Educated: Pennsylvania State University, B.S., Duke University, M.F. On staff U.S. Forest Service 1937-1938. On staff Forestry Department, University of British Columbia, 1939-1943 and 1947. Served in Second World War in Europe with U.S. Forestry Battalion. President, Assoc. of B.C. Foresters. Past President, Can. Forestry Assoc. of B.C.

**BIOGRAPHICAL NOTES OF
AUTHORS OF BACKGROUND PAPERS**

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“RESOURCES FOR TOMORROW”
CONFERENCE

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MONTREAL
OCTOBER 23-28, 1961

**NOTES BIOGRAPHIQUES DES
AUTEURS DES ÉTUDES DE RÉFÉRENCE**

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CONFÉRENCE SUR
«LES RESSOURCES ET NOTRE AVENIR»

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MONTREAL
OCTOBER 23-28, 1961

Note: Biographical sketches of the following authors do not appear in this collection: I. K. Fox; M. Hugo-Brunt; Norah Johnson; D. N. McMullen; M. W. Menzies; D. W. Slater; J. M. Smith and H. Van Vliet.



Biographical Notes of Authors of Background Papers

BAKER, WILLIAM, B., Director, Center for Community Studies, University of Saskatchewan. Born, Verigin, Sask. 1919. Educated: Verigin high school, University of Saskatchewan—School of Agriculture (1938-1940), College of Agriculture, B.S.A., (1944). Specializing in farm management; University of Minnesota, Rural Sociology (1945-1946); University of Kentucky (1948-1949); University of Michigan (1951-1952). Director, School of Agriculture, University of Saskatchewan (1946-1956); Professor of Rural Education, University of Saskatchewan, Chairman, Sask. Royal Commission on Agriculture and Rural Life (1952-1956). President, Saskatchewan Association for Adult Education.

BAKER, WILLIAM MARK, Park & Recreation Planner, Consultant to Hunting Technical & Exploration Services Limited, Toronto. Born, Toronto, 1922. Educated: University of Toronto B.A., 1949, University of London, England, M.A. 1952. Research Co-ordinator, Recreation Sector, "Resources For Tomorrow" Conference.

BENTLEY, C. FRED, Dean, Faculty of Agriculture, University of Alberta since 1959. Fred Bentley was raised on a farm near Edmonton, Alberta. Educated: Edmonton schools and Normal school. Taught for three years in rural school in Peace River district. University of Alberta, B.A. Agriculture and M.A. in Soil Science. Employed with Economics Division, Canada Department of Agriculture. University of Minnesota, Ph.D. in Soil Science. Member of faculties at universities of Minnesota and Saskatchewan before returning to University of Alberta on staff, Department of Soil Science.

BOAN, J. A., Economics Division, Department of Northern Affairs and National Resources. Born, near Briarcrest, Saskatchewan 1917. Served with R.C.A.F. 1940-1945. Educated: University of Saskatchewan, B.A. Honours in political economy and history (1949). Ohio State University Ph.D. in Agricultural Economics (1953). In 1951 associated with Red River Basin Investigation, Manitoba. In 1953 undertook study of Saskatchewan River Basin. In 1956 joined staff, Joint Intelligence Bureau. Joined Economics Division, Northern Affairs and National Resources, 1960.

BROOKS, LLOYD, Chief of Planning, National Parks Branch, Department of Northern Affairs and National Resources. Born, Vancouver, B.C. 1920. Educated: Vancouver public and high schools, University of British Columbia, B.A. Sc. in forest engineering (1949); Michigan State University, M.S. (Park management) 1951. From 1949 to 1959 employed by Parks Branch, Department of Recreation and Conservation (B.C. government). Headed up park planning section when formed in 1951. In 1959 appointed Chief of Planning, National Parks Branch, Ottawa. Member of Association of Professional Engineers of Ontario; B.C. Association of Registered Foresters and the American Institute of Park Executives.

CAMU, PIERRE V., Vice-President, St. Lawrence Seaway Authority since 1960. Born, Montreal, 1923. Educated: College Ste.-Marie, Montreal, University of Montreal, 1944-1947 (M.A.), Ph.D. 1951. Johns Hopkins University 1947-1949. Employed with Department of Mines and Technical Surveys 1949-1956. Professor of Economic Geography, Laval University 1956-1960. Vice-President, St. Lawrence Seaway 1960. In 1947 specialized in transportation in Canada, in particular, the St. Lawrence Seaway.

CARR, DAVID WILLIAM, publisher, consulting economist. Born, Leney, Saskatchewan, December 9, 1911. Educated: University of Saskatchewan, B.A., B.S.A. (1948); University of Wisconsin, M.Sc. (1949); Harvard University, Ph.D. (1953). Head of firm, D. W. Carr and Associates, 63 Sparks Street, Ottawa, since 1959. Has served as economic advisor to several federal and provincial royal commissions including the Royal Commission on Transportation. Served in Second World War with R.C.A.F. Member, American Men of Science; Canadian Political Science Association; Canadian Institute of International Affairs.

CASS-BEGGS, DAVID N., General Manager, Saskatchewan Power Corporation. Born, Manchester, England, 1908. Educated: Hulme Grammar School, Manchester and Manchester University, M.Sc. Tech. Lecturer, Schools of Technology, Oxford, 1935-1939. Lecturer, Electrical Engineering, University of Toronto, 1939-1952. Professor, Electrical Engineering, University College, Swansea (U.K.) 1952-1955. Appointed to present position, 1955. During Second World War served on Associate Committee on Aviation, and was responsible for electrical design of Canadian Human Centrifuge, used in studies of blackout of aircrew.

CLARK, R. H., Chief Hydraulic Engineer, Water Resources Branch, Department of Northern Affairs and National Resources. Born, Winnipeg, 1921. Educated: McGill University, B.Sc. Engineering (1943), M. Eng. (1945) specializing in Hydraulic Engineering. Instructor, Faculty of Civil Engineering, McGill University, 1943-1944. Design Engineer, Hydraulics Division, Dominion Engineering Works Limited, Montreal, 1944-1946. Lecturer, Faculty of Civil Engineering, University of Manitoba, 1946, Assistant Professor, 1948. In 1950 organized studies on design of flood control measures, Greater Winnipeg area. Joined staff of Water Resources Division, Department of Resources and Development, 1953 becoming Chief Hydraulic Engineer, 1956.

CLARKE, C. H. D., Assistant Chief, Fish and Wildlife Branch, Ontario Department of Lands and Forests. Born, Middlesex County, Ontario. Educated: University of Toronto, Ph.D. in biology (1935). Employed by Department of Mines and Resources, Ottawa, in wildlife work in parks and the Northwest Territories. Appointed to Ontario Department of Lands and Forests in 1944.

CLAY, C. H., Chief Engineer, Pacific Area, Canada Department of Fisheries, Vancouver. Born, New Westminster, B.C., 1919. Educated: University of British Columbia, B.A. Sc. (Civil Engineering) 1944. Employed with International Pacific Salmon Fisheries Commission, 1944-1949 as resident engineer on Hell's Gate Fishways, and other projects. Joined Canada Department of Fisheries in 1949 as Chief Engineer and Chief of Fish Culture, Pacific area.

CLEMENTS, W. A., member, Fisheries Research Board of Canada, 1942-57. Born in Ontario. Educated: University of Toronto, B.A., M.A. and at Cornell University, Ph.D. Instructor in Zoology, University of Maine, 1915-1916. On staff, Department of Zoology, University of Toronto, 1916-1924. First director, Ontario Fisheries Research Laboratory. Acting director, Atlantic Biological Station, Fisheries Research Board in summer, 1918. Director, Pacific Biological Station, Nanaimo, 1924-1940. Head, Department of Zoology, University of British Columbia, 1940-1953 and director, Institute of Fisheries and Oceanography.

COTTAM, CLARENCE, Director, Welder Wildlife Foundation, Texas. Born, St. George, Utah. Educated: Brigham Young University, M.A. in Biology (1927), also George Washington University, Ph.D. Joined research staff, U.S. Biological Survey, becoming Principal Biologist (1944) and later that year, Chief of Wildlife Research, rising to Assistant Director of that service in 1946. In 1954 became Dean of College of Biology and Agriculture, Brigham Young University. Currently Mr. Cottam is President of the National Parks Association.

COWAN, I. McT., Head, Department of Zoology, University of British Columbia. Born, Edinburgh, Scotland, 1910. Educated: University of Alberta, B.A., University of California, Ph.D. Biologist and Assistant Director, B.C. Provincial Museum, 1935-1940. On staff, Department of Zoology, U.B.C. 1940- to date. Since 1953, Head of Department of Zoology. Since 1959, Assistant to the Dean, Faculty of Arts and Science, U.B.C. Major fields of activity have been teaching and research in the general area of biological conservation and environmental physiology of mammals and birds. One-time president, American Wildlife Society. Fellow, Arctic Institute of North America. Past President, B.C. Resources Conference. Member, Fisheries Research Board of Canada. Member, National Research Council of Canada.

CRAINE, LYLE E., Professor of Natural Resources, University of Michigan. Born, Geneva, Ohio, 1908. Educated: Oberlin College (Ohio) A.B. (1931), University of Wisconsin, Ph.M. (1937), Syracuse University, M.P.A. (1950) and University of Michigan, Ph.D. (Conservation), 1956. Has been Research Associate, National Resources Planning Board, Director, Organization Planning, War Production Board, Assistant Director, Program Staff, United States Department of the Interior, and Professor of Conservation, University of Michigan.

CROMBIE, HECTOR L., Research Markets and Surveys, Canadian Government Travel Bureau. Born, Edmonton, Alberta, 1914. Educated: University of Manitoba and Carleton University. Managing Secretary, Victoria (B.C.) Chamber of Commerce 1954-1957. Joined Bank of Montreal 1933, resigned 1947. Joined Canadian Government Travel Bureau 1957. Fellow, Canadian Bankers Association.

CRUTCHFIELD, JAMES A., Professor, Department of Economics, University of Washington, Seattle. Born, New London, Conn., 1918. Educated: Roosevelt High School, Honolulu, University of Virginia, U.C.L.A., B.A. (1940), M.A. (1942), University of British Columbia, Ph.D. (1954). On teaching staffs, U.C.L.A., University of California and University of Washington 1940-1961. Received research grants, 1956 to 1961, from Resources For The Future, State of Washington Department of Fisheries and from U.S. Fish and Wildlife Service. Has been technical consultant to the F.A.O. London Conference, 1958 and other international projects.

DOWNING, C. G. E., Head, Engineering Science, Ontario Agricultural College. Born, Sceptre, Saskatchewan. Educated: University of Saskatchewan B.E. (Agricultural Engineering) 1940; Iowa State College, M.Sc. (1948). Served in Canadian Army, Second World War. Appointed Professor and Head, Engineering Department, O.A.C. 1946. Presented paper at World Power Conference, Montreal, October, 1958, "Utilization of Energy—Canadian Agriculture".

DRUMMOND, W. M., Economist, Agricultural Stabilization Board, Ottawa. Born, Bristol, P.Q., Educated: Bristol public school and Carleton Place high school. Graduated from Queen's University in 1923 with honour B.A. and medal in political science; University of Toronto, M.A. (1924). Lecturer in economics, University of Alberta, 1924-1926. Harvard University A.M. and Ph.D. Appointed Professor and Head, Department of Agricultural Economics, Ontario Agricultural College in 1937. Served on various federal committees and boards during Second World War, returning to O.A.C. in 1945. In 1953 served as member of Royal Commission on Agriculture in Newfoundland. In mid-1955 became staff member, Royal Commission on Canada's Economic Prospects. In 1957 appointed a member of the Royal Commission on Price Spreads. On completion of this work Dr. Drummond joined the Canada Department of Agriculture. He is a Fellow of the Agricultural Institute of Canada.

DYMOND, J. R., Consultant, Ontario Department of Lands and Forests. Born, Middlesex County, 1887. Educated: Strathroy Collegiate Institute, University of Toronto B.A. (1912), M.A. (1920), University of British Columbia, D.Sc. (1950). Director, Royal Ontario Museum of Zoology, 1934-1949. Head, Department of Zoology, University of Toronto, 1948-1956. Member, Fisheries Research Board of Canada, 1938-1958. Member, Advisory Committee to Minister of Lands and Forests, Ontario, 1961—President, Federation of Ontario Naturalists 1955-1959.

FARINA, A. JOHN O., Assistant Professor Section of Social Work, University of Toronto. Born, Vancouver, 1919. Educated: Vancouver schools, University of British Columbia, B.A. (1943); B.S.W. (1946) M.S.W. (1950); Washington University, Missouri, graduate study (1960-1961). Superintendent, Edmonton Recreation Commission (1947); Lecturer, University of Alberta 1949-1954; Director, University of Alberta Department of Extension, 1949-1950. Secretary, Recreation Division, Canadian Welfare Council, Ottawa, 1955-1957. Appointed to University of Toronto staff, 1957. Served in R.C.A.F. 1943-1944.

FORGIE, DONALD J., Director of Economics and Business Research, Ontario Paper Company Ltd. since 1953. Born, Toronto. Educated: University of Toronto, honour graduate in economics and holds Master of Commerce degree. Also studied international trade at Carleton University. Served in the R.C.N.V.R. in Second World War. Member, Canadian Economics and Political Science Association, Canadian Institute of International Affairs and Canadian Operations Research Society.

FORTIN, GERALD A., Associate Professor, Faculty of Social Science, Laval University since 1956. Educated: Laval University, B.A. (1949), M.A. (1954), Cornell University, Ph.D. (sociology) 1956. Conducted monography on marginal agricultural land, 1957-1958, in a Province of Quebec rural community. Since 1958 has acted as an analyst in an intensive and wide-ranging study of living conditions of salaried French-Canadian families.

FULLER, W. A., Assistant Professor, Department of Zoology, University of Alberta. Born, Moosomin, Saskatchewan, 1924. Educated: University of Saskatchewan, B.A., M.A.; University of Wisconsin, Ph.D. Student member of fisheries survey parties on Lake Athabasca (1945) and Great Slave Lake (1946). Joined staff of federal Department of Mines and Resources as mammalogist in 1947. Transferred from Fort Smith to Whitehorse in 1956. Joined University of Alberta in 1959.

GAMBLE, S. G., Director, Surveys and Mapping Branch, Department of Mines and Technical Surveys. Born, Ottawa, 1911. Educated: Ashbury College; Royal Military College, McGill University, B. Eng. (1933). On staff, Topographical Survey, Department of Mines and Resources, 1935-1938. On engineering staff, Perron Gold Mines, 1938-1939 and 1945-1946. Served with R.C.E. in Second World War. On staff, Topographical Survey 1946-1958. Chief Topographical Engineer 1954-1958. Appointed to present position in 1958.

GERTLER, L. O., Director, Long Range Planning Division, City of Toronto Planning Board. Educated: Queen's University, B.A. (1946), University of Toronto M.A. (Economics) 1950, School of Physical Planning, McGill University. Director of Planning (1952-1957) Edmonton District Planning Commission. Appointed to present position 1957. In 1960 appointed Research Co-ordinator, Regional Development Sector, "Resources For Tomorrow" Conference.

GILSON, J. C., Associate Professor, Department of Agriculture, University of Manitoba. Born, Deloraine, Manitoba, 1926. Served in Second World War in Canadian Army, Artillery Corps. Educated: University of Manitoba, B.S.A. (1950), University of Manitoba, M.Sc. (1952), Iowa State College, Ph.D. (1954)—majored in agricultural economics. On staff, University of Manitoba, 1954 to present. President, Manitoba Institute of Agrologists, Chairman, Manitoba Crop Insurance Agency, Chairman, Canadian Council. International Conference of Agricultural Economists.

GRENIER, FERNAND, Professor, Laval University, economic and human geography. Born, East Broughton, P.Q. 1927. Educated: Laval University, B.A. also M.A. in history and geography. Graduated in advance studies in history. Also from Sorbonne University, Paris, in geography, (1955). Editor of "Cahiers de géographie du Québec".

HARDY, ERIC, Director, Citizens Research Institute of Canada. Educated: University of Toronto, B.A., in political science and economics. Now a special lecturer in the graduate course in town planning in that university. Has been for many years Secretary-Treasurer of the Ontario Municipal Association, a charter president of the Institute of Municipal Assessors of Ontario which he helped to found. A Fellow of the Canadian Bankers' Association. In 1961 will be leaving his Institute position to enter private practice as a government consultant.

HARRISON, J. D. B., Deputy Minister, Canada Department of Forestry. Born, Edmonton, Alberta, 1896. Educated: Fredericton, N.B. public schools and Rothesay Collegiate. Served in Canadian Army in First World War. Graduated in forestry from University of New Brunswick, 1924. Appointed Chief, Economics and Marketing Division, federal Forest Products Laboratory, 1937. Appointed Chief, Economics Division, Dominion Forest Service, 1940. Served with Timber Control, Ottawa, in Second World War. Appointed Director, Forestry Branch, Department of Northern Affairs and National Resources, 1956.

HAWTHORN, HARRY BERTRAM, Head, Department of Anthropology, University of British Columbia. Born, Wellington, New Zealand, 1910. Educated: University of New Zealand, B.A. B.Sc., M.Sc., Yale University Ph.D. On staff of the University of British Columbia 1947 to present as Professor of Anthropology. Director of the Museum of Anthropology 1947, Director of Indian Research Project 1954-1955, Director of the Institute of Social and Economic Research 1956-1958. Vice-President of the Canadian Political Science Association 1953-1955. Member of the Canadian Social Science Research Council 1956-1959. Guggenheim Fellowship 1959, Percy Smith Medal for Anthropological Research, 1961. Fellow of the Royal Society of Canada, 1956.

HOLT, LEIF, Assistant Forester, Bowaters Mersey Paper Company Limited. Born, Omega, Russia, 1918. Educated: elementary and high schools in Norway and England, also Forest Ranger School, Norway, 1938 and Forestry College, Norway 1941-1943. Served in Norwegian Army 1944-1945. Timber cruising, Labrador, 1946-1947. Research Associate with Pulp and Paper Research Institute of Canada, 1948-1955. Appointed Assistant Forester, Bowaters Mersey Paper Company Limited, 1955. Has published 13 technical and semi-technical papers and articles. Member of Canadian Institute of Forestry, Society of American Foresters, Society of Norwegian Foresters, Woodlands Section of Canadian Pulp and Paper Association, Canadian Forestry Association of Nova Scotia.

JENNESS, DIAMOND, Born, Wellington, New Zealand, 1886. Educated: University of New Zealand, M.A. (1908) Hon. Litt. D. (1935), Oxford University, M.A. (1911). Anthropologist, Geological Survey of Canada, 1913-1926. Chief, Division of Anthropology, National Museum of Canada 1926-1948. Served in Second World War, R.C.A.F. headquarters, Ottawa. Anthropologist, Canadian Arctic Expedition, 1913-1916. Fellow, Royal Society of Canada. Author of several books including "Indians of Canada". On contract at present with Northern Research Centre, to study history of native peoples of Canada, Alaska and Greenland.

JOHNSON, RALPH S., Chief Forester, Bowaters Mersey Paper Co. Ltd. since 1932. Born, Atlantic City, N.J., 1900. Educated: New York State College, B.Sc. in forestry, 1924. Employed by West Virginia Pulp and Paper Co. 1924-1925, cruising timber in Nova Scotia and the Carolinas. Cruised timber in Ontario, Quebec, New Brunswick, N.S. and Newfoundland for J. D. Lacey and Company 1925-1928. Since 1928 has been with Mersey Paper Company Limited, now Bowaters Mersey Paper Company Limited. In 1949 received the J. A. Bothwell Award of the Canadian Pulp and Paper Association for "meritorious achievement in forest conservation". Member, board of directors, Canadian Forestry Association. Member of Canadian Institute of Forestry and now Vice-Chairman of its Nova Scotia Section.

KERSWILL, C. J., Program Head, Atlantic Salmon Investigations. Fisheries Research Board of Canada, Biological Station, St. Andrews, New Brunswick. Born, Toronto. Educated: public and high school, Richmond Hill, Ontario; University of Toronto, B.A. (Honour Zoology); University of Western Ontario, M.A. (1937); University of Toronto, Ph.D. (1941). Scientist in charge of oyster research and management, Fisheries Research Board 1941-1946. Scientific Assistant to Chairman of the board 1950-1952. Member: American Fisheries Society, American Society of Limnology and Oceanography, Nova Scotia Institute of Science, American Institute of Fishery Research Biologists.

KRISTJANSON, K., Secretary, Advisory Committee on Water Use Policy, Department of Northern Affairs and National Resources. Born, Gimli, Manitoba. Educated: Universities of Manitoba, Alberta, Toronto, Chicago and Wisconsin. Graduate from University of Wisconsin with Ph.D. in economics. Employed as research economist, Dominion Economics Division. Lecturer in economics, Ontario Agricultural College. Research economist, U.S. Forest Service and University of Wisconsin. Research economist, U.S. Dept. of Agriculture and U.S. Great Plains Council. Professor of Economics, University of Nebraska, Chairman of Great Plains Land Tenure Committee, Research Co-ordinator, Water Sector of "Resources For Tomorrow" Conference.

KUIPER, ED., Associate Professor. University of Manitoba, teaching hydraulics, hydrology, flood control, water power engineering and engineering economics. Born, Petten, Holland, 1919. Educated: Delft, Holland, civil engineering degree. Research work in hydraulics laboratory, Delft. Received fellowship for post-graduate studies at Massachusetts Institute of Technology and received Master of Science degree, 1947. Senior Hydraulic Engineer, Canada Department of Agriculture 1950-1956. Chief Engineer, Lakes Winnipeg and Manitoba Board, 1956-1958.

LAIDLAW, A. F., National Secretary. Co-operative Union of Canada since 1958. Born, Port Hood, Nova Scotia. Educated: St. Francis Xavier University. University of Toronto, Doctor of Education, 1958. Associate Director, extension department of St. Francis Xavier University for 14 years. In 1952 studied university extension and co-operative education in parts of Europe. In 1959 a consultant for I.L.O. at Naples Conference. Named to central committee, International Co-operative Alliance in 1960. Director, Co-operative Life Insurance Company, 1950-1954. Presently a director of C.M.H.C. and on executive committee, Canadian Association for Adult Education.

LARKIN, PETER A., Professor of Zoology and Director, Institute of Fisheries, University of B.C. Born, Auckland, New Zealand, 1924. Educated: Balfour Technical School, Regina College, University of Saskatchewan, M.A. (1946) Oxford University, D. Phil. (1948). Chief Fisheries Biologist, 1948-1955, Assistant Professor, U.B.C. 1948-1955, Director, Institute of Fisheries, 1955—Professor, Zoology Department 1959—Member, North American Wildlife Society, American Association for Advancement of Science, Fisheries Development Council, member, Board of Governors, Vancouver Public Aquarium.

LASH, H. N., Deputy Commissioner, Toronto Planning Board. Born, Toronto. Educated: McGill University, B.A. (1947) in economics and political science. M.A. (1949) in geography. Held C.M.H.C. fellowship in community planning. Lecturer, McGill University in geography, 1949-1950 Director of Town and Rural Planning, Alberta Department of Municipal Affairs, 1950-1957. Director, Long Range Planning Division, City of Toronto Planning Board, 1957-1960. Deputy Commissioner of said Board, 1960. Member: Town Planning Institute of Canada, Institute of Public Administration of Canada.

LASKIN, BORA, Q.C., Born, Fort William. Educated: University of Toronto (Osgoode Law School) and Harvard Law School. Professor of Law, University of Toronto. Associate Editor, Dominion Law Reports and Canadian Criminal Cases. Author of "Canadian Constitutional Law" "Cases and Notes on Land Law" and "Cases and Materials on Labour Law".

LEAHEY, ALFRED, Associate Director (Soils) Research Branch, Canada Department of Agriculture, Ottawa. Born, Belfast, Ireland, 1900. Educated: University of Alberta, B.Sc., M.Sc. University of Wisconsin, Ph.D. Farmed in Alberta until 1925. On Department of Soils staff, University of Alberta 1925-1936. On staff Experimental Farm Service, Canada Dept. of Agriculture 1936-1959 when Research Branch formed. Chairman, National Soil Survey Committee since 1940.

LEITCH, WILLIAM G., Chief Biologist, Ducks Unlimited (Canada). Born, near Winnipeg. Educated: Winnipeg public schools, University of Manitoba, B.Sc. (1938), University of Toronto, University of Manitoba, M.Sc. (1952). Served in R.C.A.F. in Second World War. Biologist in charge of banding and ecological field work for Ducks Unlimited in prairie provinces.

LEWIS, HARRISON F., Chairman, Nova Scotia Resources Council, Born, Sag Harbor, N.Y. 1893. Educated: Yarmouth County Academy, Nova Scotia Normal College, Acadia University, B.A. (1917), University of Toronto, M.A. (1926), Cornell University, Ph.D. (1929) with major in ornithology. Honorary D.Sc. from Acadia University in 1955. Served in Canadian Army in First World War. Chief Federal Migratory Bird Officer for Ontario and Quebec, 1920-1943. Head of Canadian Federal Wildlife Protection and Management Agency 1944-1952. Retired as first Chief, Canadian Wildlife Service, 1952. Editor, "Canadian Field-Naturalist" 1922-1925. Wildlife Research Scientist, Nova Scotia Department of Lands and Forests, 1955.

LLOYD, TREVOR, Professor of Human Geography, McGill University since 1959. Born, London, England, 1906. Educated: University of Bristol, B.Sc., D.Sc., Clark University, Ph.D., Dartmouth College, M.A. (Hon.), Geography specialist, Winnipeg Schools, 1931-1938, Assistant Professor, Dartmouth College, 1942-1944, Professor, 1944-1959. Chief, Geographical Bureau, Department of Mines and Resources, 1947-1948. Member, Committee on Polar Research, U.S. National Academy of Sciences, 1957-1959. Editor, "Arctic" 1947-1949. President, Canadian Association of Geographers, 1957-1958.

LOUGHREY, ALAN G., Head, Game Management Service, Northern Administration and Lands Branch, Department of Northern Affairs and National Resources. Born, Toronto, 1927. Educated: University of Western Ontario, B.Sc., M.Sc. On staff, Canadian Wildlife Service, Department of Northern Affairs and National Resources as Eastern Arctic Biologist 1951-1957. Predator Control Officer for N.W.T. 1957-1959. Transferred to Northern Administration Branch as head, N.W.T. Game Management Service, 1959. Major fields of activities include wildlife management and research studies of caribou and wolves. Author of a life history study of the Atlantic Walrus and a review of N.W.T. game legislation. A Fellow of the Arctic Institute of North America.

LOVE, DAVID V., Associate Professor. Faculty of Forestry, University of Toronto. Born, Saint John, N.B., 1919. Educated: University of New Brunswick B.Sc.F. (1941), University of Michigan, M.F. (1946) Served in Second World War in R.C.N.V.R. Associate Professor, Faculty of Forestry, University of Toronto, 1946. Secretary-Treasurer, Canadian Institute of Forestry, 1948-1954. Vice-President, Conservation Council of Ontario, 1959-1961.

MACKENZIE, W. C., Director, Economics Service, Canada Department of Fisheries. Born, 1912, raised in Cape Breton Island. Educated: public schools, Baddeck, N.S., Dalhousie University, M.A. (1938). Joined federal government service 1939, transferred to Fisheries Department 1940. Moved to Ottawa, 1942, as Assistant to Professor Stewart Bates, economist-consultant to Deputy Minister of Fisheries. Posted to Newfoundland as Director of Research and later as federal representative in Newfoundland Fisheries Development Committee 1951-1953. Promoted to Director, Economics Service, 1953. In 1956-1957 co-ordinated report on commercial fisheries for Royal Commission on Canada's Economic Prospects.

MACLEAN, D. W., Research Officer (Forestry), Forest Research Branch, Canada Department of Forestry. Born, Black Point, New Brunswick, 1920. Educated: University of New Brunswick, B.Sc.F. in 1941 and a graduate diploma in Public Administration from Carleton University, 1960. Joined Dominion Forest Service 1946 and has been engaged in forest research work since.

MAIN, J. R. K., Senior Canadian representative, International Civil Aviation Organization, Montreal. Born, near Pincher Creek, Alberta, 1894. Educated: Pincher Creek public and high schools and Calgary Teachers College. In World War One served in Royal Engineers and Royal Flying Corps and R.A.F. Joined Department of Transport as Pilot Inspector, 1936. In charge of priority of movement of all Canadian Civil Aircraft and air operations during Second World War. Served as Executive Assistant to Director of Air Services; Regional Controller, Air Services, Edmonton; Assistant Director of Civil Aviation; Director of Civil Aviation.

MAIR, W. WINSTON, Chief, Canadian Wildlife Service. Born, North Battleford, Saskatchewan, 1914. Educated: public schools North Battleford area. University of British Columbia, B.A. and M.A. in zoology with specialization in wildlife management (1952). Served in Second World War with Canadian Army. Supervisor of Predator Control, B.C. Game Commission. With Defence Research Board at Fort Churchill in 1952. Appointed to present position in 1952. Member: Arctic Institute of North America, The Canadian Society of Wildlife and Fishery Biologists, etc.

MARLYN, F., Executive Director, Edmonton District Planning Commission, since 1957. Born, Winnipeg. Educated: public and high schools, Winnipeg. University of Manitoba, graduate in architecture, 1950. Postgraduate work at school of Planning & Research for Regional Development, London, England. Served with Canadian Army in Second World War. Joined staff of Edmonton District Planning Commission in 1953. Member: Town Planning Institute of Canada.

MENZIES, J. R., Chief, Public Health Engineering Division, Department of National Health & Welfare, Ottawa. Educated: University of Toronto (Civil Engineering degree) 1926, specializing in sanitation. Following three years spent in surveying and municipal engineering in Northern Ontario, joined federal health department in 1929 and appointed to present position 1948. Qualified as Ontario Land Surveyor, 1929 and received degree of C.E. from University of Toronto in 1948.

McEWEN, E. R., Deputy Head, Recreation Branch, R.C.A.F., Ottawa. Educated: University of Manitoba. Served in Second World War with R.C.A.F. In 1943, placed in charge of R.C.A.F. Education Services in Middle East. At end of war appointed Associate Director, Canadian Youth Commission. For five years he headed Recreation Division, Canadian Welfare Council. Member: Ottawa Welfare Council and Youth Services Bureau, Ottawa Municipal Recreation and Parks Committee.

McGILLY, FRANK J., Research Associate, Citizens Research Institute. Educated: St. Francis Xavier University, B.A. Post-graduate work in political science at McGill University. Has been executive secretary of the Institute of Public Administration of Canada, also Managing Editor of the quarterly journal "Canadian Public Administration".

MUNRO, DAVID AIRD, Chief Ornithologist, Canadian Wildlife Service, since 1953. Born, Victoria, B.C. 1923. Educated: Elementary and high schools, Vernon, B.C., University of British Columbia, B.A. (honors zoology) 1947. University of Toronto, Ph.D. (1956). Served with R.C.A.F. in Second World War. In Canadian Wildlife Service as Wildlife Management Officer—Vancouver—1948 to 1953. Research Co-ordinator, Wildlife and Fisheries Sectors, "Resources For Tomorrow" Conference.

NICHOLSON, NORMAN L., Director, Geographical Branch, Department of Mines and Technical Surveys. Born, London, England. Educated: University of Western Ontario, B.A., M.Sc., University of Ottawa, Ph.D., On staff, Department of Geography, University of Western Ontario 1946-1949, joined Geographical Branch Department of Mines and Technical Surveys in 1949. Major fields of activity have been in land use mapping and land use surveys, particularly in co-ordination of activities of federal and provincial work in these fields. Chairman of the Canadian Permanent Committee on Geographical Names. Chairman, Canadian National Section, Pan-American Institute of Geography and History. Editor, "The Canadian Geographer," 1954-1958. Secretary, Canadian Committee, International Geographical Union and head of the Canadian delegation to the 10th General Assembly, I.G.U. in Stockholm, 1960.

OZERE, S. V., Assistant Deputy Minister, Canada Department of Fisheries. Graduate of University of Manitoba Law School. Joined the Department in 1944. Advisor to Canadian delegation to U.N. on fisheries. Member of Fisheries Committee in negotiations of Union of Newfoundland with Canada; member of Canadian delegation to International Conference on the Law of the Sea, Geneva, 1958. Also took part in conference between Canada and the U.S. negotiating the Great Lakes Treaty and the Pacific Salmon Convention. Member: Canadian Bar Association.

PAGET, ARTHUR F., B.C. Department of Lands and Forests. Born, Tucksford, Saskatchewan 1907. Educated: public and high schools, Edmonton. With C.P.R. Construction Department, leaving as Resident Engineer 1923-1931. Served with Canadian army in Second World War. Municipal Engineer and consulting in building design. Joined Water Rights Branch, B.C. Department of Lands and Forests 1947. Comptroller of Water Rights of B.C. Registered Professional Engineer (B.C.) Member: Engineering Institute of Canada, Fellow American Society of Civil Engineers.

PARKS, ARTHUR C., Director of Research, Atlantic Provinces Economic Council. Fredericton, N.B. Born, Waterborough, Queen's County, N.B., 1923. Educated: University of New Brunswick, B.A., M.A. Served in Canadian Army in Second World War. Economist and Secretary-Treasurer on staff of Atlantic Provinces Economic Council, for last three years as Director of Research. Lecturer in economics at University of New Brunswick. Member, Canadian Political Science Association and Scottish Economic Society. Participant in Atlantic Provinces studies project, sponsored by the Social Science Research Council of Canada. Author of a number of reports on various aspects of the Atlantic Provinces.

PATTERSON, T. M., Director, Water Resources Branch, Department of Northern Affairs and National Resources. Born, Kincardine, Ontario 1901. Educated: University of Toronto, bachelor of applied science (1925). With the exception of two years on hydro power construction, has been with Canadian government on water resources work. Member: Northern Canada Power Commission, Canadian National Committee of the World Power Conference, the Engineering Institute of Canada, Professional Institute of Public Service of Canada.

PEPLER, W. A. E., Manager, Woodlands Section, Canadian Pulp and Paper Association since 1947. Born, Toronto, 1899. Educated: Toronto schools, University of Toronto, B.Sc.F. (1922), Yale University M.F. (1926). Served in First World War with Royal Air Force. Worked for the Dominion, as well as Ontario, Forestry Branch Assistant Manager, then Manager of Quebec Forest Industries Association. Employed by Canadian International Paper Company in forestry work 1926-1939. Member: Royal Commission Investigating the Price of Pulpwood (Quebec) 1943, Quebec Forestry Association, Quebec Society of Forest Engineers. Past President, Canadian Institute of Forestry.

PLEVA, EDWARD G., Professor and Head of Department of Geography, University of Western Ontario since 1938. Born, Minneapolis, Minn., 1912. Educated: University of Minnesota, Syracuse University, B.A., M.A., Ph.D. Major fields of interest: geography and planning, geographic basis of resource development problems, geography in education. Editor, Canadian Oxford Atlas and McGraw-Hill series in Canadian Geography. Chairman, City of London Planning Board. Technical Consultant to Ontario Committee on Land Use, Conservation and Rehabilitation.

RICHARDS, N. R., Professor and Head, Department of Soil Science, Ontario Agricultural College since 1951. Born, Bruce County, Ontario. Educated: Graduate of O.A.C. (1938), Michigan State University, M.Sc. (1945). With Canada Department of Agriculture 1938-1951 as Supervisor of Soil Surveys, Province of Ontario. Past President, Canadian Society of Soil Science, Canadian Council Member—Soil Conservation Society of America, member of Conservation Council of Ontario.

RICHARDSON, NIGEL H., Community Planner, Lower Mainland Regional Planning Board of B.C. since 1956. Born, Bermuda 1930. Educated: Bermuda schools, McGill University, B.A. (geography and social sciences) 1951, M.A. (sociology & community planning) 1954, University of Liverpool (diploma in civic design) 1955. Town Planning Assistant, Birmingham, England, 1955-1956. Member of the Planning Institute of B.C. and of Town Planning Institute of Canada as well as of the U.K.

RICHARDSON, ARTHUR H., Chief Conservation Engineer, Conservation Branch, Ontario Department of Commerce and Development since 1944. Born, Toronto. Educated: Toronto public schools and secondary education by private tutor, McMaster University, B.A. (1915), M.A. (1916)—honour biology, Harvard University, S.M. Silv. (1920), Toronto University, F.E. (1945) Entered Forestry Branch, Ontario Department of Lands and Forests, 1920. Special lecturer in forestry, O.A.C. 1926-1940. Editor McMaster Monthly for two years. Founder of Forestry Chronicle and editor for ten years. Author of "The Ganaraska Report". Member: Canadian Institute of Forestry, Association of Professional Engineers of Ontario (Civil Branch), Professional Foresters of Ontario and honorary member, Soil Conservation Society of America.

RICKER, W. E., Fisheries Research Board of Canada, Nanaimo, B.C. Born, Waterdown, Ontario, 1908. Educated: public and high schools, North Bay, University of Toronto, B.A. (1930), M.A. (1931) Ph.D. (1936). With Fisheries Research Board of Canada as scientist in the sockeye salmon investigation 1931-1938. With International Pacific Salmon Fisheries Commission 1938-1939. Professor of Zoology, Indiana University 1939-1950. Editor of publications, Fisheries Research Board of Canada and consultant for the Board's biological investigations.

ROBILLARD, CLAUDE, Director, Montreal City Planning Department since January, 1961. Born, Montreal 1911. Educated: St. Mary's College, 1923-1931, McGill University, degree in engineering (1935). Was with Bell Telephone Company 1935-1942. Quebec Power Company 1942-1944. Assistant Transit Controller, Department of Munitions and Supply in 1944. In 1942 he was appointed Assistant to the director of Public Works, City of Montreal. In May 1951 he was named Engineer-Superintendent of the Parks and Recreation Division of the Public Works Department. This division was established as the Parks Department in 1953 and Mr. Robillard was appointed its director. President of American Institute of Park Executives, 1957-1958. Director of the Montreal Symphony Orchestra and of the Museum of Fine Arts.

ROBINSON, IRA MILES, Assistant Professor of Planning, University of British Columbia since 1952. Born, New York City 1924. Educated: Christopher Columbus High School, N.Y., Wesleyan University, B.A. (1946) University of Chicago, M.A. (1950), Ph.D. (1961). Served with U.S. Navy in Second World War Director of Planning, South Side Planning Board (Chicago) 1950-1952. Member: Executive Council, Planning Institute of B.C.

ROWLEY, H. J., Development Engineer, The New Brunswick Electric Power Commission since 1952. Born, West Saint John. Educated: Public and high schools, Saint John, Mount Allison University, B.A. and M.A., honours in chemistry, Queen's University, B.Sc. (chemical engineering and metallurgical engineering) 1920. Director, Research and Development Division, Abitibi Power and Paper Co. 1928-1932, Director, Research and Development Division, Anglo-Canadian and Anglo-Newfoundland Pulp and Paper Companies 1932-1940, Director of Operations, Allied War Surplus Corporation 1940-1944. Chairman, New Brunswick Resources Development Board 1944-1952. Member: (6 years) Honorary Advisory Council, National Research Council. Fellow, Canadian Institute of Chemistry.

SAMETZ, Z. W., Director, Economic and Social Research Division, Department of Citizenship and Immigration since 1959. Born, Winnipeg, 1922. University of Toronto, B.A., M.A. (Honour Sociology) (Political Economy), Columbia University, (Resident Fellowship). Dominion Bureau of Statistics 1957-58, on National Income, 1944, Department of Reconstruction, 1944-47 on Public Investment. Industry Studies on Productivity in Pulp and Paper Industry, area and regional Studies on Reconversion problems and Regional Development. Fisheries Prices Support Board 1948-1950 as Chief of Marketing Economics. Department of Fisheries 1950-1951 as Chief of Production Economics. Department of Defence Production 1951-1954 as Defence Production Officer on Regional Distribution of Defence contracts and Subcontracts. Department of National Defence (air) 1954-1959 as Chief Logistics Analysis Officer, on systems analysis and electronic computer preparation. Conducting economic and sociological research on immigrant adjustment, citizenship development and Indian integration.

SCOTT, HERBERT K., Land economist, Canada Department of Agriculture, Ottawa. Born, near Wetaskiwin, Alberta, 1918. Educated: public schools in Daysland and Edmonton. Served in R.C.A.F. in Second World War. Graduated from University of Alberta, B.Sc. (1949) majoring in agricultural economics. Joined Canada Department of Agriculture, Economics Division in 1949. Received from Cornell University degree of Master of Science (1953). Work with federal department largely concerned with farm organization and land utilization studies, and more recently in economics of irrigation land in northern Alberta.

SEWELL, W. R. D., Economist, Water Resources Branch, Department of Northern Affairs and National Resources since 1957. Born, Rock Ferry, Cheshire, England, 1931. Educated: Elementary and high schools, London, England, also Ecole Normale de Chartres, France. University of London, honours degree in economics (1954). University of Washington, M.A. (1955). Economic research with Bureau of Economics, B.C. Department of Trade and Industry, 1956-1957. Vice-President, B.C. Natural Resources Conference and member, Canadian Association of Geographers.

SHEBESKI, L. H., Professor and Head, Department of Plant Science, University of Manitoba. Born, Aubigny, Manitoba, 1914. Educated: University of Manitoba, B.S.A. (1941), M.Sc. (1946), University of Minnesota, Ph.D. thesis pending. Served with R.C.A.F. in Second World War. Assistant Professor, Field Husbandry Department, University of Saskatchewan 1947, Associate Professor 1948-1953. Member of National Research Council of Canada.

SHEFRIN, FRANK, Chief, Policies and Prices Section, Economics Division, Canada Department of Agriculture. Educated: University of Manitoba, B.S.A., Iowa State University, M.S. Postgraduate work at University of Chicago. Joined Canada Department of Agriculture, Economics Division, in 1941. With F.A.O. at Rome 1951-1953 as well as with other F.A.O. Conferences.

SINCLAIR, M. H., Section Head, Regional Studies Section, Community Planning Branch, Ontario Department of Municipal Affairs. Educated: McGill University, B.Sc., M.A. (C.M.H.C. Fellowship in Physical Planning). Served in Second World War. Was part-time lecturer in geography (2 years) at Sir George Williams College, also several summers with Geographical Branch, Department of Mines and Technical Surveys. Has been with Planning Branch, Ontario Department of Municipal Affairs since 1954. Had two years experience in zoning and committee of adjustment work before establishment of Regional Studies Section.

SISAM, JOHN W. B., Dean, Faculty of Forestry, University of Toronto since 1947. Born, Springhill, N.S. 1906. Educated: Aberdeen High School, Moncton, and Normal School, Fredericton, N.B. University of New Brunswick, B.Sc.F. (1931); Yale University, Master of Forestry (1937). Director, Imperial Forestry Bureau, Oxford, 1939-1945. Associate Professor, then Dean of Faculty of Forestry, University of Toronto, 1945 to present. President, Canadian Institute of Forestry, 1955-1957. President, Ontario Professional Foresters Association, 1957-1959.

SIVERTZ, BENT G., Director, Northern Administration Branch, Department of Northern Affairs and National Resources. Born, Victoria, B.C. 1905. Educated: University of British Columbia. Served in Navy during Second World War as officer-in-charge of the Navigation School and as Commanding Officer, Naval Officers' Training Establishment, H.M.C.S. "Kings" Halifax. After the war Mr. Sivertz entered the Department of External Affairs as Foreign Service Officer. He was Assistant Chief, Consular Division. In 1950 he transferred to the Department of Resources and Development and when the Arctic Division was created in 1954 he was made Chief of the Division. In 1957 he was appointed Director, Northern Administration Branch.

SOLOMON, DARWIN D., Program Resource Specialist, Centre of Community Studies, University of Saskatchewan. Educated: University of Wyoming 1937-1938 and 1940-1942. Sociology, anthropology, agricultural economics and extension education, Cornell University, M.S. and Ph.D., 1950 and 1953-1956. Experience in extension organization and training with UNRRA, China—also study tour of rural-development projects in India. Taught rural sociology, Cornell University.

SPARGO, R. A., Assistant Secretary, Advisory Committee on Water Use Policy since 1960. Born, Nova Scotia, 1935. Educated: Mount Allison University, B.A. (1955). Joined Economics Division, Department of Northern Affairs and National Resources, 1957.

SPENCE, CLARENCE C., Western Supervisor, Administration Branch, Economics Division, Canada Department of Agriculture, Edmonton Office. Born, Ridgetown, Ontario, 1896. Educated: London (Ontario) Normal 1915-1916; University of Saskatchewan, B.S.A.; Cornell University, Ph.D. Economist, Canada Department of Agriculture, 1935 to date. Officer-in-charge, Economics Division, Saskatchewan 1935-1941; Western Supervisor, Edmonton, since 1942. Major activities—conducting studies in land use and production economics in prairie dryland, woodland and irrigation agriculture. Served on a number of advisory committees on land use for the prairie provinces and P.F.R.A. In 1954 and 1955 served in Iran as technical adviser of a F.A.O. irrigation team.

SUMMERS, WILLIAM F., Associate Professor, Head of Geography Department, Memorial University of Newfoundland since 1960. Born, St. John's, Newfoundland. 1919. Educated: Dalhousie University, B.Sc. (Geology) 1946; McGill University, M.Sc. (Geography) 1948 and Ph.D. (Geography) 1957. Assistant Professor, Geography, at McGill University from 1950-1959. Director, Land Use Survey of Newfoundland, 1958-1959.

SYMINGTON, D. FRASER, Research Associate, "Resources for Tomorrow" Secretariat. Born, Rosthern, Saskatchewan, 1920. Educated: Saskatchewan and Manitoba, Carleton University, Ottawa, B.J. (1949). On staff of Provincial Secretary, Saskatchewan Government 1950-1953. With Saskatchewan Department of Natural Resources, 1954-1957. With Department of Northern Affairs and National Resources, Northern Administration Branch, 1957-1960. Joined "Resources For Tomorrow" Secretariat in 1960.

THORPE, F. J., member, Resources Division, Administration Branch, Department of Northern Affairs and National Resources. Born, Toronto, 1925. Educated: Toronto Public and Secondary Schools; University of Toronto, B.A., M.A. (history). French government scholarship, Sorbonne, 1951-1952. Joined Public Service of Canada 1953. Has served on secretariat, Advisory Committee on Water Use Policy.

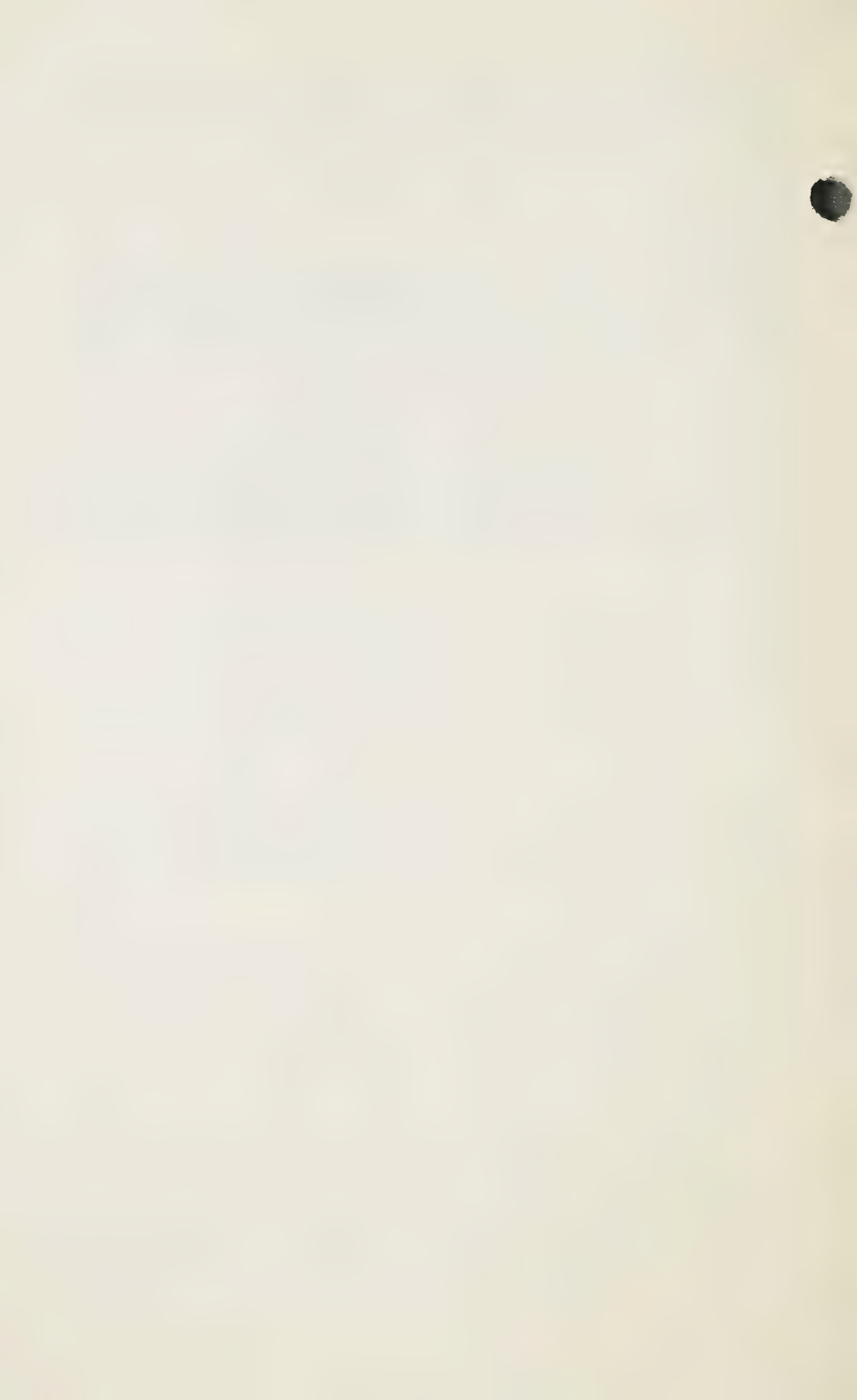
TUNSTELL, GEORGE, Federal Representative, Eastern Rockies Forest Conservation Board. Born, Uxbridge, Ontario, 1889. Educated: Uxbridge public and high schools; University of Toronto, B.Sc.F. (1913). Joined Forestry Branch, Department of the Interior, on graduation. Appointed Officer-in-charge of Prairies district, federal forest services in 1930. Appointed Chief, Forest Research Division, Ottawa, 1950. Has been with the Eastern Rockies Forest Conservation Board in various capacities since 1950.

TYRRELL, MRS. JOYCE M., Vice-chairman, Metropolitan (Toronto) Branch, Community Planning Association of Canada. Educated: McGill School of Physical Education; University of Toronto, B.A., Ontario College of Education; University of Toronto, Department of Architecture course in Town and Regional Planning. In 1955 headed the Canadian delegation as representative of the Canadian Association of Health, Physical Education and Recreation, at the International Congress on Recreation for Women held at the Sorbonne, Paris.

WATT, A. K., Director, Water Resources Division, Ontario Water Resources Commission. Born, Bruce County, 1913. Educated: Public and High Schools, Allandale and Long Branch, Ontario. Toronto Normal School. University of Toronto B.A. (1940) in Geology and Mineralogy. Assistant to Natural Gas Commissioner, Ontario Department of Mines, 1940-1942. Geologist undertaking ground water and pleistocene geology studies, Ontario Department of Mines, 1944-1957.

WEIR, J. R., Dean, Faculty of Agriculture and Home Economics, University of Manitoba. Born, Wingham, Ontario, 1912. Educated; Wingham High school and Stratford Normal School. University of Toronto, B.S.A., University of Alberta, M.Sc. and University of Minnesota, Ph.D. Lecturer then Professor, Department of Field Husbandry, Ontario Agricultural College, 1940-1952. President-elect, Agricultural Institute of Canada and Chairman, Steering Committee, National Conference on Farm Policy Research.

WILSON, DAVID A., Head, Economics Planning and Market Research, Canadian International Paper Company, Montreal. Born, Victoria, B.C. 1923. Educated: University of British Columbia, B.A. (1947); B.S.F. (1948); University of California, Ph.D. (1955). President, Montreal Economics Association, Chairman, Economics Section, Canadian Institute of Forestry. With the Alaska Pine Company Limited, Vancouver 1948 to 1950. With Canadian International Paper Co. since 1955.







RESOURCES for TOMORROW

by **WALTER GRAY**

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FOREWORD

The background papers prepared for the Resources For Tomorrow Conference in Montreal October 23-28, 1961, contain a wealth of information on Canada's renewable resources and the problems they present to the governments under whose jurisdiction they are administered.

A reading of the papers indicates the tremendous challenge facing not only the various administrations concerned but to Canadians generally.

Walter Gray, chief of the Ottawa Bureau of The Globe and Mail, has extracted from the background papers the highlights of the challenge, and, over a period of weeks, his articles were published in the daily editions of The Globe and Mail.

The articles received such wide public response that The Globe and Mail on request has compiled them in booklet form.

This newspaper has always adopted a policy of support for conservation and protection of Canada's natural resources, and has endorsed the Resources For Tomorrow Conference, a joint effort of the governments of Canada and the ten provinces.

Resources Meeting May Be Giant Step To Halting of Waste

Resources for Tomorrow

Part 1—March 23, 1961

An orchard in the Niagara Peninsula is obliterated by bulldozers carving out a new housing subdivision. A spring torrent runs wild across farmland, through hamlet and town, causing thousands of dollars' worth of damage. City dwellers seeking summer refuge at water's edge meet a forest of no-trespassing signs.

Federal, provincial and municipal governments and private and public organizations devote millions of dollars and thousands of man-hours to an eternal struggle to preserve and control Canada's most valued possession, its natural resources. Why then do flood, fire, drought and human wastefulness continue to ravage the country with such devastation?

Perhaps the answer will be found during the week of October 23-28 in Montreal's Queen Elizabeth Hotel, when one of the most important conferences ever held in Canada will take place. It is the Resources for Tomorrow Conference, a joint venture of the Ottawa and the 10 provincial governments, designed to explore the possibilities for better management and development of the country's renewable resources.

Five hundred representatives from industry, voluntary associations and universities, technical experts and officials of the 11 governments will

attempt to crystallize the serious resources problems and to chart a future course leading to orderly development and control.

"I believe the conference will prove to be a landmark in the economic advancement of all parts of Canada," says Walter Dinsdale, minister of northern affairs and national resources.

"I believe that we have embarked on one of the most forward steps that any country has ever taken in regard to the best use of human and material resources," says Agriculture Minister Alvin Hamilton.

Basically, the conference will concern itself with six main sectors of Canada's renewable resources: agriculture and land use, water, fisheries, forestry, wildlife, recreation and regional development. Special attention will be given to the interdependence of the various resources fields.

Resources for Tomorrow—the meeting was originally called a national conference on conservation and multi-purpose development until it was agreed by planners that the word conservation did not accurately reflect their purposes — will be well planned, considering the complexities of the subject.

It has been taking shape slowly since 1958, when Prime Minister John Diefenbaker

first drew attention to the problem. At that time he emphasized the urgency of the matter and the necessity for a common approach by governments, industry, individuals and private organizations.

Under Mr. Hamilton, then minister of northern affairs and national resources, the groundwork was laid. A secretary was appointed: 41-year-old Dr. Baldur H. Kristjanson, head of the co-operatives, credit union and market areas unit of the economic division of the Department of Agriculture.

"The whole-hearted co-operation of all 11 senior governments has been a key to the successful preparations," Dr. Kristjanson says.

About 75 papers on various aspects of resources problems were prepared by authors across Canada. Discussions at the conference will proceed on the basis of these background papers which will have been circulated among all conference participants months in advance.

In 1906, Sir Wilfrid Laurier, then prime minister, called the first resources conference, sponsored by the Canadian Forestry Association. The outcome of the meeting was the formation of the Commission

of Conservation in 1910. A second conference was held in 1954, under the sponsorship of the Canadian Institute of Forestry, the Agricultural Institute of Canada, the Canadian Chamber of Commerce and the Engineering Institute of Canada.

Since the Conservatives took office four years ago, some honest efforts have been made in the direction of conservation. They are working imperceptibly toward the first goal, a national power grid. Once this feat is accomplished — and this in itself requires the careful utilization of resources—then, the Conservative visionaries believe, the orderly development of Canada can begin.

It is the Diefenbaker Administration's hope that the Resources for Tomorrow Conference will demonstrate to the 10 provinces that co-operation between themselves and the Federal Government can be achieved despite politics. There is no attempt by Ottawa to usurp the provinces' constitutional right to their own resources, only a sincere effort to unite the provinces in the common preservation and orderly use of their precious natural gifts.

Leaky Water Program

Resources for Tomorrow

Part 2—May 25, 1961

A senior civil servant has pointed out an obvious fact: Canada has not adopted a fully comprehensive and countrywide approach on water resource management.

And, says T. M. Patterson, director of the water resources branch, Department of Northern Affairs and National Resources, the need for such an over-all approach has become abundantly clear.

Mr. Patterson is one of several experts engaged by the secretariat of the Resources for Tomorrow Conference to write background papers on the subject of water which will be used as reference by delegates to the conference on national resources in Montreal. The secretariat has released the first voluminous batch of papers, on water. Papers on agriculture, forests, wildlife, fisheries and recreation resources were distributed.

Mr. Patterson proposes three main reasons why Canada has not adopted the comprehensive approach on water resource management.

- The need for such an approach has not been urgent until now. Blessed with abundant water resources, Canada has been able to accommodate increasing demands without undue difficulty. The present urgency varies significantly across the country.

It is greatest in regions where water resources are limited or where the stage of economic development has progressed significantly and the number of competing uses is large. It is generally in

these regions that the first steps toward comprehensive management have been taken.

- The British North America Act imposes a division of jurisdiction in water management that fails to recognize the interrelationship between various water uses and water users and so has acted as a major inhibition to the adoption of a comprehensive approach.

Mr. Patterson says the tendency at the federal level has been to concentrate on those aspects of water use mentioned and specifically assigned to the federal authority in the BNA Act, namely navigation and fisheries, and to give less attention to other aspects.

The problem is further complicated in cases where a water use under federal jurisdiction conflicts with a use under provincial jurisdiction.

"In the absence of agreement and co-operation between the two levels, possibilities of comprehensive development are precluded," said the director.

- Water projects in general have been developed in Canada for specific and immediate ends. Nevertheless, there have been steps taken leading to a more comprehensive approach to water resource management. These efforts have been made possible by various readjustments in the administrative framework, notably, increased co-ordination within both the federal and provincial fields of administration, the organization of agencies equipped to carry out project formulation and development on a multiple

purpose basis, and increased co-operation between the federal and provincial governments in planning, investigating and developing water resources.

At the 1960 hearings of the Commons Committee on Mines, Forests and Waters the question of the establishment of a Water Resources Department was raised but the committee did not recommend such a plan. In the provinces, attempts have been made to increase co-ordination. One successful example is the Ontario Water Resources Commission's attack on the water pollution problem through recent legislation giving it the responsibilities of some other agencies in this connection.

The St. Lawrence River development scheme has welded navigation, power and flood control purposes into a multiple-purpose plan; on the Niagara River, power and scenic beauty were jointly enhanced and in some projects of the Prairie Farm Rehabilitation Administration in Western Canada combinations of irrigation, domestic water supply, flood control, recreation and power generation have been achieved.

At the provincial level several steps have been taken to carry out multiple purpose schemes of development, such as the local grass roots projects presented by the conservation authorities in Ontario, Manitoba and Saskatchewan.

Mr. Patterson points out that one of the most effective means of handling the increasingly complex problems of water management has been through greater co-operation between federal and provincial authorities.

"Through such co-operation great advances have been made in reaching mutual

understanding of common problems and needs. Successful as these efforts have been, a great deal remains to be done if truly comprehensive development is to be attained."

While Mr. Patterson did not intend to propose the form of administrative framework of the future he did point out some features that should be taken into consideration when readjustments are made:

- The future framework will have to take into account the limitations imposed by the constitution.

- It should be organized in such a way as to permit the various levels of administration to play their most effective part in planning and development.

- It should be adaptable to new concepts in resource management.

"It is clear that a variety of structures will be required, each one tailored to fit particular conditions and objectives. Some structures will have possibilities of universal application, but others will be suited to only a few or to individual situations. A case in point is the management of water resources on a river basin basis. In some cases the valley authority type of structure might be appropriate; in other cases a regional authority dealing with a number of basins could be the most suitable agency.

"The merits of possible structures need to be carefully examined in the light of the varying conditions across the country and of the three points above. The future framework should embody that degree of flexibility that will permit it to encompass a broad phalanx of conditions and requirements."

Visualize Ships To Prairie's Heart

Resources for Tomorrow

Part 3—May 29, 1961

A man with vision foresees the day when the Nelson River drainage basin, which in fact is the three Prairie Provinces, will support 100-000,000 persons. Ships may sail from Hudson Bay into the heart of the Saskatchewan wheat fields, from Winnipeg to the Alberta coal mines.

But before these visions of E. Kuiper, Professor of Hydraulic Engineering at the University of Manitoba, and even more pertinent projects such as flood control and conservation ever become a reality governments must first establish some kind of framework in which co-ordinated planning in the river basin can be conducted and carried out.

Prof. Kuiper has thrown his visions and challenges out to the Resources for Tomorrow Conference to be held in Montreal this fall in one of a series of background papers on the subject of water. And he offers some suggestions to boot. Mr. Kuiper proposes that as the first step the federal Government consolidate its water resources development activities in one department, such as a Department of Hydraulic Works, to deal with all water problems.

Engineers and economists in such a department should be effectively protected from political interference with their engineering design and cost-benefit analysis. Only after technical reports have been submitted will political judgment be applied by the appropriate executive bodies.

On problems of water resources development of an interprovincial or international character, this department would initiate studies, seek the co-operation of the provinces concerned and provide leadership in carrying out the investigations.

"The advantage of such an organization is that the engineering talent available in Canada could be more effectively utilized," says Prof. Kuiper. "Moreover, the experience gained on one project could be applied to other parts of the country, and would serve to educate young engineers and economists in the service. Finally, a strong federal department, co-operating with provincial engineering organizations, would be more likely to come up with an adequate engineering solution and an unbiased economic analysis than would a local provincial department."

While admitting that compilation of a blueprint for the future water resources development of the Nelson River basin would require several years of study by a competent engineering staff, Mr. Kuiper has produced a sketch of some of the potential uses of water and to point out the need for integrated development, effective administration going across provincial boundaries, and bold financing that takes into consideration not only today's and tomorrow's requirements but that also provides for optimum development for generations to come.

A look at the map shows



Locks would be simple at the South Saskatchewan River dam now being built.

that the Nelson River proper flows 400 miles northeast through rugged, virgin country from Lake Winnipeg to Hudson Bay. But into the drainage basin flow all the great rivers of the West, the Winnipeg, Red and Assiniboine, the North and South Saskatchewan Rivers and their tributaries.

Considering the tremendous area of the river basin and the huge flow of water in the river system, the development of its water resources at present in effect is relatively small—about 1,000 megawatts of hydro development, mostly on the Winnipeg and Bow Rivers, and less than 1,000,000 acres of irrigation, mostly in Alberta.

However, Mr. Kuiper states

with optimism, the prospects for the future are bright; the people of the Prairie Provinces may invest more than \$1,000,000,000 in different phases of water resources development during the next several decades.

"Now is the time to establish the framework for this development and to make sure the components are co-ordinated to yield the greatest possible benefits."

Some headway is being made. Following past disastrous floods in the lower end of the basin, engineering studies were undertaken which resulted in a comprehensive program of flood control. A combination of four projects was devised, namely a floodway east of Greater

Winnipeg, at an estimated cost of \$60,000,000, to which the Federal Government has given its blessing; a diversion of the Assiniboine River into Lake Manitoba, at an estimated cost of \$10,000,000, a reservoir on the upper Assiniboine River, at an estimated cost of \$6,000,000, and control works at the outlet of Lake Manitoba, at a cost of \$1,600,000. Construction of the latter project is already under way.

Mr. Kuiper says the water power potential of the lower Nelson River basin in one of the country's great assets. Hydro plants have already been constructed at all feasible sites on the Winnipeg River. A new plant is now being constructed at the Grand Rapids site on the Saskatchewan River with an initial capacity of 320 megawatts while a plant is being built at Kelsey on the Nelson River with an initial capacity of 120 megawatts. By 1970 the load demand for Southern Manitoba may have increased to the point where development of the remaining Nelson River plants, and transmission of their power to the south, becomes economical. Between 1970 and 1985, 10 plants may be built, with a total generating capacity of 4,000 megawatts.

The professor's vision of an enhanced power potential of the lower Nelson basin includes a pumping plant to lift some 2,000 cubic feet per second of water up a height of 30 feet from Lake Winnipegosis to Cedar Lake. The water could then generate power over a height of 120 feet at Grand Rapids. Another possibility is to divert water from the Churchill River into the Nelson basin to generate power over 800

feet of developed head.

On the Saskatchewan River delta, three major projects are currently under way: the South Saskatchewan River dam, a hydro plant on the Saskatchewan River at Squaw Rapids and a plant on the Brazeau River in Northern Alberta.

Mr. Kuiper foresees a series of dams between the South Saskatchewan and Squaw Rapids projects, each one forming a reservoir that would extend to the foot of the next dam upstream. As the water supply becomes too precious to generate electricity at these sites, water could be pumped from Lake Winnipeg to the South Saskatchewan reservoir.

The professor says it would be a simple matter from a technical standpoint to build shiplocks in conjunction with the dams on the Saskatchewan and Nelson Rivers to provide a navigable waterway into the heart of the prairies.

He has come up with an even more ingenious alternative. Goods might be transported in large cylindrical self-propelled capsules that move underwater while electronically-guided. At the site of a dam a capsule moves into a conduit and is locked through toward the other side of the dam. Such a system would enable year-round water traffic.

The professor is also a realist, for he poses the obvious question: Is it economical?

Mr. Kuiper says the leadership of the Federal Government in financing such projects is the chief prerequisite. To conduct the required financial negotiations efficiently and swiftly, the minimum number of agencies should be involved.

A Perfect Example of Pollution

Resources for Tomorrow

Part 4—June 1, 1961

It is to the nation's shame that swirling about the foot of Parliament Hill, the focal point of Canada's capital, is one of the country's most highly polluted rivers. The Ottawa River, rising fresh and clear in the forest lands of northern Ontario and Quebec, surges through this city choked full of wastes left by this day and age.

Its polluted waters are unfit for human consumption. Its beaches are banned for swimming and recreation. The scum floating on its surface casts a repulsive effluvium over its channel as it swirls downstream to join the St. Lawrence River.

It is a perfect example of the type of problem to be faced by delegates to the Resources for Tomorrow conference in Montreal this fall. The Ottawa has been singled out for mention in a conference background paper prepared by J. R. Menzies, chief of the public health engineering division of the Department of National Health and Welfare.

"Gross pollution extends from Hull and Ottawa to the junction with the St. Lawrence River due to municipal and industrial wastes, the latter originating to a large extent in pulp and paper plants," says Mr. Menzies.

Examining the various geographical areas of water pollution, Mr. Menzies comes to the conclusion that the most obvious need is a better knowledge of pollution problems on the part of the taxpayer. So many demands are being made for increased ex-

penditures in urban communities that sewage treatment gets little support in many areas.

"Pollution problems of major significance are already evident in Canada and will become more common and more severe as industrial and urban development increases," he says. "Hence, a more complete knowledge of present conditions coupled with prompt and effective remedial action is essential for future national development and expansion."

Mr. Menzies admits the fact that factual data concerning the effects of water pollution in Canada are indeed scarce, but blames this on the complexity and cost of pollution studies, coupled with personnel limitations of most administrative groups concerned. Some boundary water studies by the International Joint Commission have been beneficial and similarly, studies by provincial authorities, and to a lesser degree, by federal agencies, have provided valuable data for some areas. Extensive surveys of sanitation problems have been carried out in coastal waters by federal and provincial governments but these have been limited to determining sources of pollution and the bacterial content of the sea water.

The federal official stresses the point that industrial wastes have caused serious water pollution problems and will do so in the future with increasing frequency unless great care is observed in dealing with them. Phenolic

compounds used or produced by many industries are still a major problem despite strong efforts to correct the situation.

Toxic wastes have been responsible for extensive fish kills and may also affect municipal water supplies. Solid wastes have destroyed extensive spawning grounds of fish.

"With new products being developed and new industries starting production throughout the country it is inevitable that disposal of industrial wastes will present problems of increasing complexity," says Mr. Menzies.

The expert has produced a chart which is startling in its revelation that of a 1956 census population of 16,438,610, only 9,148,876 persons in Canada are served with sewers. And only 1,899,141 are served by primary treatment and 3,079,733 are served by secondary treatment.

The burden of municipal sewerage and treatment carried by every growing Canadian municipality is becoming heavier. Municipal officials are very conscious of the high cost of water treatment when the source of supply is seriously polluted and are demanding remedial action, particularly if the pollution originates outside their own community.

It is only in recent years that waste treatment has been seriously considered by industries, but with little uniformity of action. Local conditions and the zeal, or lack of it, of pollution control agencies are the principal determining factors.

Inland areas are more likely to have pollution problems than coastal areas. For this reason, says Dr. Menzies, it is not surprising that inland

provinces of Alberta, Saskatchewan, Manitoba and Ontario have been confronted with the most frequent and serious problems, and, consequently, have shown the most progress in pollution abatement.

Pollution control in Canada is generally under the jurisdiction of health departments, but in recent years other agencies, such as the Ontario Water Resources Commission, have taken on the responsibility. The cost of treating industrial wastes is generally held to be the responsibility of the industry concerned if the wastes are discharged directly to the receiving waters.

When the wastes enter a municipal sewerage system the policy regarding their treatment may vary considerably. The cost of treating municipal wastes is a charge borne by the community. The National Housing Act provides for federal loans up to two-thirds of the capital costs of sewerage plants and trunk interceptor sewers, with a rebate up to one-quarter of such expenditures incurred before April, 1963.

Looking to the future, Dr. Menzies said that a basic need for tomorrow's plans is a more accurate knowledge of present conditions. This will require an increase in water pollution studies by competent authorities, with a related major increase in personnel and equipment.

Similarly, means should be sought to reduce wasteful run-off of valuable water. Associated with this is the need since many areas best suited for better control of land use, to forest growth have been denuded. Reforestation can offer a partial solution since it tends to increase minimum flows.

Why We Waste Water Resources

Resources for Tomorrow

Part 5—June 5, 1961

One of the Canadian anomalies is that although the water users of the country are currently tapping only one-quarter of the supply, they scrounge, scrap over and jealously guard their rights to this resource, yet waste so much of what is available.

Lack of proper management is the crux of the whole lamentable situation. A pair of experts, Dr. Kris Kristjanson, secretary of the advisory committee on water use policy in the Department of Northern Affairs and National Resources, and W. R. D. Sewell, of the department's water resources branch, have put their finger on the main reasons.

Unnecessary delay in starting development because of a lack of clearly defined responsibilities is one reason they lay down in a background paper prepared for this fall's Resources for Tomorrow conference.

The various levels of government—federal, provincial and municipal—debate about who should initiate action.

Dr. Kristjanson and Mr. Sewell note a growing interest in comprehensive multi-purpose development of the country's water resources.

"It is generally recognized that a river basin should be used as the basic unit for such planned development," they say. "The role to be played by the various levels of government has not been defined."

They see a need for comprehensive planning for such

ivers as the Fraser, Columbia, Saskatchewan, Nelson, Ottawa, St. John and others, but neither the federal nor provincial governments have the kind of organizational arrangements or personnel required to conduct such planning.

Looking at the four main areas of Canada, they find the Pacific region well endowed with water resources, but because of their uneven distribution in relation to population and other resources, and because water has numerous uses, a variety of water management problems have arisen.

British Columbia has no agency adequately equipped to handle the difficult job of planning the over-all development of the province's water resources.

The Saskatchewan-Nelson River basin spanning the three Prairie provinces is pregnant with potential but before maximum benefit from the area resources can be obtained a number of problems must be solved. There is the question of divided jurisdiction and the present lack of organization machinery to deal with disputes over water use. There is the need for a comprehensive plan which integrates the various potential water uses in the basin, and also the need for a clarification of federal and provincial policy regarding participation in water developments.

The waters of the basin are under the jurisdiction of the

three provinces and the federal Government. The federal responsibility relates to agriculture, navigation, fisheries and international waters. There is no formal organization device to resolve conflicts which may arise.

Dr. Kristjanson and Mr. Sewell list three factors which have created management problems in the central region comprising Ontario and Quebec: the uneven distribution of population in relation to the distribution of water resources, the rapid expansion of the economy, and the interprovincial and international character of many of the water resources of the region.

The effect of the various pressures on water resources in southern Ontario and Quebec has emphasized the need for an over-all approach to water management in which multiple-purpose planning and development are essential features. The writers also see a need to investigate the full potential of water resources in the northern area.

The growth of population and industry in some parts of the region, coupled with the development of new water

uses is one of the main problems of the Atlantic region. Other major questions are the economic difficulties and the lack of local capital to finance development.

Concluding their examination, Dr. Kristjanson and Mr. Sewell leave conference delegates with a number of basic policy questions:

- Is it in the national interest to develop the major river basins on a comprehensive multi-purpose basis? Should this be used as a means of increasing employment?

- What should be the role of the federal and provincial governments in achieving such developments?

- Where river basins transcend provincial boundaries is a new type of regional organization required to conduct investigations and to plan and construct the works of improvement or are existing agencies appropriate?

- How can the professional skills required for multi-purpose developments be marshalled most effectively?

- What cost-sharing arrangements will encourage initiative as well as financial responsibility?

St. John River New Brunswick Sewer

Resources for Tomorrow

Part 6—June 9, 1961

The Indians, in the days when Samuel de Champlain discovered it in 1604, called the St. John the Wolastook, or the goodly river. Its broad channel was the main highway of the time, its clear, sparkling waters the local fish market where salmon, shad, alewives, sea trout and other fish abounded.

Today, the river is the main sewer for New Brunswick. H. J. Rowley, development engineer for the New Brunswick Electric Power Commission, in a background paper for the Resources for Tomorrow Conference, states quite bluntly:

"The Wolastook is now the great waste receptor for industry and for our civilized communities. Legislation, both federal and provincial, relating to pollution as harmfully affecting health and well-being of human and fish life are reasonably well expressed in statute form but seemingly none too readily or conveniently enforced."

But Mr. Rowley sees some hope for the future in the newly established Water Authority Board which has been given wide powers to restore the waters of the St. John River to something like pristine quality, suitable for a healthy fish population as well as for recreational, domestic and industrial use.

The St. John River, rising in northwest Maine, runs 435 miles down the heart of New Brunswick, its scenic valley a mecca for tourists and

fishermen. Each spring a harvest of saw logs is floated downstream from northern Maine and New Brunswick to the pulp and paper mills in Saint John.

The main stream and its tributaries generate 170,600 kilowatts of power from such big projects as the dams at Grand Falls and Beechwood. Recent studies by the St. John River Board indicate that, when sufficient thermal power is available for base loading during periods of low water flow, capacity could be increased to nearly 1,000,000 kilowatts through construction of new plants and additions to existing units.

But like the other major rivers of Canada, the St. John is bound up in conflicting interests, both locally and internationally. Sportsmen are horrified at the potential loss of one of the best salmon streams in the country to power dams which form a barrier to fish swimming upstream. Mr. Rowley maintains the aim of the New Brunswick Power Commission is to bend every effort to get maximum production from the resources of the basin. It has spent a good deal of money in the construction of fish passes over the dams at Beechwood and Tobique.

At Beechwood, for instance, the fish are given an elevator ride. They swim into a receiving car on inclined rails. When the car is loaded with its passengers it is drawn up the incline and tipped over

the upstream lip of the dam, the finny riders tumbling into the reservoir to continue their journey. And for the easily frightened ones who are confused by the great discharges from the spillway gates, they are netted, dumped in a tank truck and rushed upstream to their spawning and rearing grounds on the Tobique River.

Mr. Rowley notes that the St. John River basin, with its possibilities for increased power production, reclamation of agricultural land, navigation and recreational opportunities, not to mention its fish and wildlife resources, is a good example of the necessity for a multiple-purpose approach.

Many agencies, both federal and provincial, are presently

involved, and because of its international and interprovincial nature these aspects also have to be considered. The Power Commission is at present, and may for some time to come, continue to be the principal force in the remodeling of the features of the St. John water resource.

"The question emerges, however," Mr. Rowley poses, "whether better results, all factors considered, might be had through the creation of an agency on which the various interests would be considered in the planning and development process. Because of the complexity of the many aspects which are involved, this course of action seems to be at least worthy of consideration."



St. John River (left) flowing through the Reversing Falls.

Death Struggle On Fraser River

Resources for Tomorrow

Part 7—June 12, 1961

There is much symbolism to be read into one of nature's annual miracles when millions upon millions of salmon charge upstream through the roaring, power-laden waters of the Fraser River to spawn in the quiet headwaters in the British Columbia interior.

The miraculous journey from the Pacific Ocean inland is a death struggle, for when the salmon arrive at their destination, exhausted by the powerful forces of the Fraser, they lay their eggs, then die, leaving their progeny to return to the sea.

So it is that man himself is locked in a death struggle over the Fraser River and its resources. The salmon represent the fish industry bent on protecting its interests. The force of the water tumbling through the mountain canyons represents the group of power men bent on developing the full potential of the Fraser.

This battle has been going on ever since man discovered the potential of the river's two resources but without resolution. However, the experts now admit that some major decisions must be made soon. This fact is borne out in a background paper prepared for this fall's *Resources for Tomorrow* Conference by A. F. Paget of the B. C. Department of Lands and Forests, and C. H. Clay of the federal Department of Fisheries.

"It has never been considered fair to attempt an economic comparison between present resource use of the Fraser

River basin and the value of electrical energy available because the real need for the energy has not yet been demonstrated," writes Mr. Paget. "The time when such a comparison must be made is rapidly drawing near, however, and it is reasonable to expect that the energy resource values will far outweigh any resource losses consequent to such development."

Mr. Clay expresses the other viewpoint: it is generally believed by fisheries scientists and engineers that full-scale hydro-electric development of the Fraser would mean extermination of most of the salmon runs and reduction of the potential production to such a low state that the Fraser River fishery would have doubtful economic value. He proposes three courses of action for the future:

- First, research on the fish must be pursued vigorously, and increased far beyond present levels.

- Second, all possible alternatives should be thoroughly explored before consideration is given to full-scale hydro-electric development. This includes the examination of alternative methods of power development such as production from hydro-electric sites in adjacent river basins.

- Third, pending a solution to the complex problem of fish maintenance, no planning of full-scale hydro-electric development should be implemented without taking

into consideration the full economic and social consequences which would result from destruction of the fishery.

Engineers estimate the Fraser still has 6,000,000 kilowatts of the 22,000,000 kilowatts of potentially undeveloped power sites in B.C. Already 1,523,000 kilowatts of Fraser River power have been developed. Administration of Fraser River water is governed by the Water Act and carried out by the controller of water rights.

The federal Government shares an interest in the Fraser River Board, formed by Ottawa and B.C. in 1955 to carry out investigation on flood control and hydro-electric power development. A preliminary report, issued three years later, proposed development of a large block of power, with a probable capacity of 1,000,000 kilowatts. The board, on instructions of Ottawa and Victoria, is investigating this proposal and is scheduled to report by Sept. 30, 1963.

Looking to the future of the Fraser, Mr. Paget said it is apparent that greater demands will be made on the river and its tributaries both for waterworks and industrial purposes.

"The economic value of water for such purposes is so great that no conflicting interests can stand for long against such use," the expert writes.

There is the possibility in the future that cheap power may become available to lift water from the deep B.C. canyons to the arable plateaus

and the present agricultural worth of the entire region could conceivably be doubled. With continuing pressures for the development of Fraser River energy and for the use of water for consumptive purposes there are certain areas on the tributaries where there is no possibility of maintaining any long-term program for fish propagation.

Consequently, the various interested agencies must get together to establish with a fair certainty which streams could be developed for a reasonable time with the fishery point in mind, and on which streams it is not practical to have further fishery interest demonstrated.

"As major hydraulic starts are necessary some five to 10 years before the actual power is needed, it is possible that, if salmon runs are to be maintained in their present abundance, and depending on natural means alone, there may be only some 10 to 15 years to evolve solutions for the fish problems."

The Fraser River fishery—which yields an average \$36,000,000 a year at wholesale prices—has a romantic history and a perilous future.

The International Pacific Salmon Fisheries Commission, which is responsible for preserving the valuable sockeye and pink salmon species, is aiming for a production of 27,000,000 fish worth \$70,000,000 annually.

But, as Mr. Clay points out, full-scale hydro-electric development of the Fraser would all but spell the end of the Fraser River fishery.

Waterfowl Are Losing Their Prairie Homes

Resources for Tomorrow

Part 8—June 15, 1961

Every autumn, as the first chill winds of winter whistle down the great flyways of the Canadian North, 300,000 sportsmen race to lake and marsh to hunt for the waterfowl bound for the warm southern climates. But with each annual flight, wildlife experts cast an eye over the flyways and shudder. Slowly, the marshes and sloughs that are the habitat of Canadian wildfowl are disappearing through drainage ditches and under the plough. And just as slowly, but very surely, the wildfowl resource is withering.

The reason? Public apathy and politics, suggests W. G. Leitch, chief biologist of Ducks Unlimited (Canada) in a background paper for the Resources for Tomorrow conference.

"Although the major waterfowl problem in Canada is habitat preservation, no concerted effort is being made to solve it," says Mr. Leitch. "This is due to public apathy resulting from a lack of understanding of the situation, and because in the Prairie provinces the damage waterfowl do to cereal crops in some years has created a political atmosphere unresponsive to any program proposing to increase waterfowl."

Recently, the Canadian and U.S. Governments agreed on a proposal to work at this problem. Under a scheme devised at a meeting in Ottawa in May Canadian and U.S. farmers will be paid for grain

and corn which they would grow to provide feed for migratory waterfowl in breeding grounds and along flyways between the southern States and northern Canada.

"It was recognized that sportsmen and farmers as well as governments were involved in providing habitat for ducks and geese, and that it was a matter of mutual concern to direct to farmers a growing proportion of income from hunting and associated recreational activities," the cabinet ministers from both countries said in a statement following the meeting.

The agreement is of far-reaching importance to both farmers and sportsmen, for as Agriculture Minister Alvin Hamilton pointed out at the time, similar proposals have been previously tried without success because the farmers felt they were subsidizing the sportsmen.

The two countries administer the waterfowl resource jointly under the Migratory Birds Convention Act, signed in 1916, which gave the federal Governments of Canada and the United States the responsibility for perpetuating migratory birds and the authority to determine when and under what conditions migratory waterfowl may be hunted.

Management of the resources is complicated by its inherent mobility and unique non-appropriable characteristics, says Mr. Leitch. Although most of the produc-

tion takes place in Canada, the greater part of the kill occurs in the United States, where wintering habitat is supplied after the hunting season is over. The two countries are therefore, in the main, concerned with quite different management aspects of the sources which must be thoroughly integrated for good management.

Canada and the United States, through their respective wildlife services, do a good deal of co-operative work. Last year, for instance, the U.S. Bureau of Sport Fisheries and Wildlife sent 18 men and six aircraft to Canada to assist in the annual spring inventory of nesting waterfowl and the summer brood surveys. The provinces and private organizations joined with the federal services in various surveys and banding operations.

The Delta Waterfowl Research Station at Delta, Man., sponsored by the North American Wildlife Foundation, an international group with both U.S. and Canadian directors, continued research on basic waterfowl problems.

The United States has taken the lead in establishing international flyway councils to manage waterfowl on a flyway rather than a national basis. Some Canadian provinces have taken out membership but others have not yet responded.

Mr. Leitch is critical of the passive approach Canada has taken over the preservation of waterfowl habitat, which he considers the most urgent management problem. He

notes that as far back as 1887 the federal Government set aside a breeding ground for migratory birds in Saskatchewan, and again in 1925 it reserved several other areas in Saskatchewan and Alberta for the same purposes. The Prairie provinces, on taking over land administration in 1931 apparently became most apathetic about waterfowl preservation, Mr. Leitch claims, and the apathy was spread to Ottawa.

"Waterfowl management degenerated to setting bag limits and seasons and establishing sanctuaries at the request of local residents or organizations," he says.

"This passive attitude, if pursued while waterfowl habitat continues to disappear, leads only to shorter and shorter seasons and smaller and smaller bag limits and, finally, the end of duck hunting as a recreational pursuit."

Contrary to opinion, the most important waterfowl breeding areas lie, not in the remote north, but on the prairies and aspen parklands, and in the heart of this breeding range, waterfowl are competing with agriculture for water and living space and are continually losing ground through agricultural encroachment and drainage.

"Many water bodies no longer have any value to breeding waterfowl. Little effort is being made to conserve the habitat, and in this respect Canada is not fulfilling her obligation in the field of international waterfowl management."

Better Trappers Needed

Resources for Tomorrow

Part 9—June 19, 1961

For more than 400 years, ever since the white man discovered the treasure trove of furs in Canada, the Indian and Eskimo have been the primary trappers of raw fur. Now, a leading authority suggests it may be time for a change.

A. G. Loughrey, head of the game management service, territorial division, northern administration branch of the Department of Northern Affairs and National Resources, in a background paper for the *Resources of Tomorrow* conference, notes that there has been a tendency for federal and provincial governments to preserve the fur trapping rights for the aboriginal inhabitants and their descendants, particularly in the North West Territories, the Yukon Territory and the northern parts of the provinces.

"Strong evidence can be presented to show that these people are not good conservationists and in many instances are not even good trappers," says Mr. Loughrey. "The fur resources of this country, like the forest, water, and mineral resources, belong to the nation and not to any specific ethnic group."

He urges the provincial and federal governments to take adequate measures to insure that the nation's fur resources are being managed and harvested to provide the optimum benefits. Mr. Loughrey notes that in the Soviet Union, the production, buying, marketing, processing, manufacture and export of fur are all controlled by the state, but he does not think such a pro-

gram would either be acceptable or feasible in Canada.

The average annual value of raw fur production in Canada during the 10-year period 1950-59 was \$25,700,000. In 1958-59 total production of raw furs was 5,300,000 pelts valued at \$25,800,000. Wild fur value was \$9,700,000 and ranch furs \$16,100,000.

The Eskimos and Indians comprise the majority of the 30,000 full-time and part-time trappers in Canada and governments are committed to the policy of educating and preparing them for ultimate wage employment. However, it may be 10 or 20 years or even longer before they have reached that point where they can compete in the labor market of the southern urban centres. During this transitional period the majority of northern Indians and Eskimos will have to rely on their traditional pursuits of hunting and trapping for a livelihood.

"In view of those considerations, it is imperative that governments formulate a policy by which Indians and Eskimos will derive the greatest benefit from the fur resources. Government wildlife research and management agencies must concern themselves not only with the proper harvesting of the resource, but also with the capabilities of the people who are harvesting that resource."

Mr. Loughrey proposes the formation and support of trapper councils to foster concepts and responsibilities associated with group ownership and management of trapline

areas. Trapper education programs should be increased in scope and function in order to teach improved trapping and fur handling techniques.

"It is not over-stating the case to re-emphasize that the ultimate problem of the fur industry is not one of supply but of demand. Greater emphasis and efforts must be directed toward increasing consumer demand, particularly in view of the competition to North American furs from foreign producers and the competition from the cloth and synthetic pile clothing segments of the apparel industry. To counter this situation the fur industry of Canada and North America must employ a dynamic, three-fold approach to consumer demand, namely market research, product development and product promotion."

The service director notes an immediate need for product development in the fur industry. It is possible that species not presently being exploited could provide additional markets, such as the expanded use of the hair seal

for sportswear. He suggests a need for the development, production and promotion of various types of manufactured fur products, such as hats, scarves, gloves, shoes, snow boots and ski wear. The use of fur materials in the upholstery industry, for furniture and cars, opens up a new horizon.

Mr. Loughrey notes the inadequacy of product promotion in Canada and proposes a commission or board to engage in both domestic and foreign market promotion.

"This agency should attempt to develop an industry-wide code of ethics. Canadian furs should be made the standard of quality. There is a great need for manufacturers' identification on fur apparel, standardization of names and manufacturers' guarantee. In the field of pricing of fur coats and other wearing apparel there is considerable room for reform, particularly in price advertising. Advertising should stress the product and the quality of that product rather than price reductions."

A Conservation Dish

Resources for Tomorrow

Part 10—June 20, 1961

If it becomes the custom in Canada to bake 4 and 20 blackbirds in a pie, as was done for the king in nursery rhyme, this country might solve its biggest wildlife problem.

Throughout the country these birds attack grains, be it Ontario corn, newly sprouted peas in the Maritimes, green oats on the Prairies.

"The birds are adaptable and multiplying. No real solution is in view, and not much research has been done," says

C. D. H. Clarke, assistant chief of the fisheries and wildlife branch of the Ontario Department of Lands and Forests.

Dr. Clarke has selected the blackbird problem as one of the many questions concerning Canadian wildlife which will be raised at this fall's Resources for Tomorrow conference in Montreal.

Another problem, even greater in individual cases, is caused by ducks in swathed grain on the Prairies. It is complicated over the whole of

North America by the fact that ducks are protected to provide sport.

"These are merely the simplest and most obvious examples of conflicting interests," Dr. Clarke has written in a conference background paper. "Man and wildlife impinge on each other constantly and we may be expected to be confronted by problems from time to time. In sharing space we and our domestic animals share, with wildlife, food and other plants, diseases, parasites, drought, flood, climatic extremes, industrial and domestic pollution, residues of pesticides, and atomic fallout. The more we know about wildlife, the safer we will be. We might, through the sensitiveness of the wild creatures to changes in the environment, be made aware of some of our own problems and perils."

One of the most important requirements in possessing the significance of wildlife, says Dr. Clarke, is a knowledge of how it is used and how this use is changing.

It is estimated that there are at least 1,500,000 hunters in Canada who spend close to \$100,000,000 a year. In Ontario alone, an average 390,000 non-resident anglers spend \$2,250,000 for licenses and some 4,000 U.S. moose hunters pay more than \$400,000 for licenses.

In periods in which total population has doubled, hunting pressure has increased three to four times. Ontario's increase is five times and Alberta about 10 times. By the end of this century the economists estimate that the demand for outdoor recreation will be increased tenfold.

W. Winston Mair, chief of the Canadian Wildlife Ser-

vice, in another background paper, has taken up the challenge of a future wildlife policy. There is clearly a requirement for courageous, imaginative leadership in the development of the wildlife resource.

"As a matter of policy, studies should be undertaken at every level of government to determine desirable modes and levels for use of wildlife, and where and how far governments should go in meeting the wants being created in the wildlife field. If this is not done, we may well make the resource but one more amusement, to be discarded at whim, rather than a rich contribution to our way of life."

Mr. Mair submits a number of policy points to be considered:

- No non-jurious game taken should be wilfully wasted, since such is offensive, not only to Canadians but to people throughout the world.

- All federal lands should be managed for wildlife, in harmony with the basic plan for each province or territory.

- Significant areas of provincial Crown lands should be retained from alienation, or land should be acquired by the Crown, to produce wildlife for hunting, fishing and associated recreation, and to provide public grounds for those pursuits. In multiple-land-use planning, provision should be made for areas where wildlife will be the primary use.

- The right of public access, for purposes of hunting, fishing and other associated recreational pursuits, should be maintained for all leased Crown lands under some form of regulation con-

sistent with the major use of those lands.

• Some form of recompense for private land-owners should be devised, in order that their lands may produce wildlife to full capacity and be made available to the public under regulation.

Mr. Mair maintains that the present system of financing wildlife management is quite inadequate and will become more so as pressures on the resource increase.

The wildlife director points out that the amount of money spent annually in hunting and fishing can be compared favorably with the market value of all commercial fish landed in Canada, yet the federal Government alone spends \$20,000,000 annually on commercial fisheries, while all agencies, federal and provincial, in the sport fish and wildlife field spend only about \$10,000,000 annually.

Mr. Mair submits that the

general interest in wildlife, in all its phases, should be maintained through programs financed from general revenue. The federal Government should contribute to its support, primarily through financing and initiation of research.

One of the basic wildlife management problems is the critical shortage of wildlife scientists. Mr. Mair proposes that wildlife agencies associate their research activities with universities and research councils to provide the environment that will attract the best men and women available to this field. Increasingly higher qualifications must be demanded of game wardens and conservation officers.

Mr. Mair says there is an urgent need in Canada for a citizens' organization dedicated to the development and furtherance of concepts and philosophies in the wildlife field.

Flight From Leisure: Call It Recreation

Resources for Tomorrow

Part 11—June 28, 1961

In this Twentieth Century, and more recently, in the last two decades, Canadians have cultivated a curious fetish: the fine art of occupying their leisure time. They like to call it recreation. Be it a trip to the summer cottage, a night out on the town, a football game, a class in ceramics, or merely watching television, Canadians like to think they are making good use of their leisure time,

according to John Farina, assistant professor of the School of Social Work at the University of Toronto.

"The essential leisure problem is simply that we have failed miserably to grasp the opportunity that leisure presents," the professor states quite bluntly in a background paper for the Resources for Tomorrow conference.

"It is a sad commentary on our response to the challenge

of leisure that recreation is frequently referred to as a problem, that we continue to put the educational emphasis on the techniques for making a living but fail to educate people to live," says Mr. Farina. "Why should we be surprised — though understandably dismayed—to find that all too many literally seek an escape from leisure through narcotic relief in the unreal world of the constant vicarious player? We tolerate a situation where recreational opportunities are allowed to lie fallow even while they are desperately needed for a better balanced pattern of social activity and then cry havoc about the state of affairs."

Canadian patterns of the use of leisure for recreation appear to be characterized by flight, says the professor, reflecting the hurry, bustle and tension, the philosophy of consumption and emotional stimulation of the workaday world.

"Our leisure habit patterns do not reflect the inner calm that makes true leisure possible. Leisure for most does not provide the release from materialistic drives nor the freedom from social, economic and psychological pressures which make true self-expression possible."

Mr. Farina distinguishes four categories of Canadian recreational flight:

- Flight from an inner impoverishment of intellectual, spiritual and physical resources of the individual. The technological developments, mass production and mass communication media available have served to expedite the Canadian's free time. To a great extent the flight is the non-creative uses of leisure; self-improvement, community service and self-indulgence.

- Flight from the city is a most important Twentieth Century development. In the summer months city dwellers literally flood the highways en route to the summer cottage, the summer camp, the resort hotel, the tent grounds, the beaches, the lakes, the mountains or seashore. In the fall and winter a less pronounced but yet significant exodus takes place to the hunting lodge and ski resort. On a year-round basis there is continual travel from one city to another to conferences, conventions, spectator events and the like. Industries have developed and public services have been provided to cater to these movement patterns.

- Flight from the home in the form of attendance at spectator sports, theatre, club, has not been matched since the days of the Roman Empire. Canadians have responded to music, drama, cinema and art presentation. Night clubs, bars and even dismal beer parlors flourish. Restaurants, both domestic and exotic, proliferate in many of the major cities as ever more Canadians regularly dine out. In every city and town, under commercial, club or public auspices, people go out of the home for the course, which may be anything from ceramics to yoga. The club movement has mushroomed; today there is a club for everyone. Moonlighting, that is an extra job on top of the daily work, is a modern phenomenon, perhaps a sad commentary on the fact that the moonlighter is unable to employ his free time except in work.

- Flight from reality through retreat from social involvement is a prevalent characteristic of Canadian culture. This retreat from participation takes the form of solitary pursuits such as

watching television and listening to the radio.

"Canada is unique among Western nations in its failure to give positive guidance and support to a policy of national recreation," says Dr. Farina. "It is not a uniqueness likely to contribute to the realization of positive goals for leisure time."

The professor submits that such a program of resource development should be based on the pursuit of recreation, rather than the flight from leisure. Such a program should be related directly to the goals and aspirations of the individual and to the goals and aspirations of Canada.

Overlooked in the planning of recreation resorts are the personal recreation goals. The resources have been established on the assumption that

Canadians are interested in sports so sports fields and gymnasiums are provided. It is assumed there is an interest in water activities so lakes, streams and seaside areas are reserved.

"On a national basis, the provision of recreation resources appears to bear little relationship to national aspirations. No fewer than 17 branches of the federal Government were reported concerned with recreation. There appears to be no co-ordinated policy governing national development of recreation resources or programs, nor is there any channel for inter-provincial sharing of ideas and discussions of policy."

Mr. Farina suggests a national policy could be based on all or several of the following goals:



The beach at Sibbald's Point Provincial Park on Lake Simcoe.

- To regard recreation in its many dimensions as a basic source of cultural stimulation and development. Canadian legislation relating to cultural stimulation — such as the Canada Council Act — completely ignores the potential of recreation.

Comments Mr. Farina:

"We do not play good hockey in Canada because of Maurice Richard, but rather we produce a Maurice Richard because we play a lot of hockey in Canada. Thus, the more extensive the participation in a given activity, the more possibility there is of a high level of achievement. Recognition of this simple principle through a policy of encouraging a broad range of cultural recreation activities would give great stimulation to Canadian culture."

- To develop recreation programs in a manner which will aid national identification.

"Just as the individual in mass society needs a sense of individuality so he needs a sense of national identity, a sense of belonging to a particular kind of people. This suggests that there should be something Canadian about the resources we provide for recreation. It is not suggested that our recreation resources should be developed in isolation from the world but rather that Canadian cultural components should be prime determinants of design, construction and programming."

- To improve the non-material standard of Canadian life.

"This does not mean greater consumption of material products, but rather a great investment of social

capital. It does not mean the establishment of expensive resort hotels hundreds of miles from centres of population, but the acquisition of properties publicly administered and within a few hours' transportation range of our cities and towns. It does not mean the leasing of parkland or facilities to enterprising entrepreneurs, but rather a policy of property acquisition and development by public authorities designed to provide the recreation resources required for the abundant life for all."

Mr. Farina submits there is an urgent need for the establishment of government policy which would give recreational land use a greater priority in relation to alternative uses. Canadians are generally being forced back farther and farther from the cities in order to find a site suitable for a picnic and a swim. Water-front properties are being fenced off at an alarming rate.

"Indeed, it is not likely that more than 10 per cent could have private rights to such property within several hundred miles range of our population centres. For the other 90 per cent, it is becoming apparent that our heritage really means their heritage. Public authorities have in recent years made efforts to reacquire for the Canadian people their heritage."

Mr. Farina notes a further problem on resource use, that is, to what extent must government control the use of property, and concern itself with the effects resulting from the use?

"All too frequently in recent years fine recreation property has been restricted

in use, often as a direct result of the use of adjacent or nearby industrial property or as a direct result of municipal government. Many industries and municipalities, while extolling the value of our land and water resources, methodically pollute those resources by the indiscriminate dumping of industrial waste and raw sewage into our rivers, lakes and harbors. High cost and discriminatory practices,

often based on non-Canadian standards of cost and ethnic relationships, result in some of our most delightful recreation resources catering largely to a limited group of Canadians and foreigners. This type of operation in some instances flourishes in government-controlled parks."

The fundamental question to be answered in terms of the development of recreation is a development for whom?

Farms Face Bad Days: Economists Warn

Resources for Tomorrow

Part 12—July 1, 1961

Two Federal Government economists have warned that Canadian agriculture is in for hard times in the next 10 years, and more particularly in the next five years.

The warning comes from Merrill W. Menzies, grain policy adviser to Agriculture Minister Alvin Hamilton, and Frank Shefrin of the department's economic division.

The economists have outlined the basis for their prediction in a background paper prepared for the Resources for Tomorrow conference in Montreal this fall:

- There is no indication of an early or substantial modification of the agricultural policies of industrial countries, nor an acceleration of economic growth in developing countries to lead to major

increases in food imports on a commercial basis.

- Large food surpluses in the United States will for some years have a depressing effect on agricultural markets and incomes.

- Western Europe, and particularly the Common Market countries will move closer to self-sufficiency in the next five years.

- The Communist-bloc countries do not appear likely to give improved feeding of their populations the highest priority.

The growing demand originating in Western Europe, the United States and Japan will likely be for feed grains and specialty food products, such as certain meat cuts, or new types of processed foods, the economists forecast. Rising in-

comes will alter the pattern of food consumption and increase demand for services related to food processing and merchandising more rapidly than the demand for products at the farm gate.

"For the developed markets, therefore, Canada should be seeking to export a greater proportion of labor and capital in conjunction with farm products than has been the case in the past," they said.

Mr. Menzies and Mr. Shefrin see a growing import demand originating in the economically developing countries for bulk foods, chiefly cereals, and much of this increased demand will be on a non-commercial basis.

"Canada's greatest interest in programs for the international distribution of food is inevitably concerned with wheat. Should the European commercial markets for wheat contract, Canada will be forced to make major adjustments and look for markets for wheat in other areas. Since in these other areas, the only really large commercial importer is Japan (the economists make no reference to the recent huge commercial sales to China) Canada may be forced in the short run to become more dependent on non-commercial wheat markets than in the past, if the level of Canadian wheat exports is to be maintained."

The economists suggest it may well be that actions that would increase food assistance in the short run would also prove to be sound economic policy measures for the long run. Such efforts would also tend to maintain a more stable international trade in a number of important agricultural products. Not all agricultural products, however, are suited for such action.

While painting a dark picture for the next 10 years, Mr. Menzies and Mr. Shefrin see in the next 20 years a doubling of Canadian meat consumption and a 70 per cent increase in the total physical volume of foods consumed. At the same time they foresee an 80 per cent increase in the world demand for food, primarily for staple cereals.

"Therefore, while Canadian wheat exports may face some difficulty in the next five to 10 years, the long-term outlook is more hopeful. Since growth in domestic demand will shift Canadian agriculture strongly toward a livestock economy, there should be no great problem apart from short-run variations in finding export outlets for the limited supplies of coarse grains which are surplus to domestic requirements. Agriculture can therefore expect, in the longer run, to enjoy the almost forgotten privileges of an expanding industry."

Misleading Image of Canada

Resources for Tomorrow

Part 13—July 3, 1961

The image of Canada as a northern playground, a mecca for the outdoorsman, is cherished by the advertising writers and tourist agencies. But it is, in all honesty, quite misleading.

True, the statistics show that in this country of 3,851,809 square miles and 18,041,000 persons, there is enough room to allocate 134 acres of playroom for every Canadian man, woman and child. But the fact is that 80 per cent of this play space is in the northern barrens and non-productive forest belts and is out of reach to most of the people.

Within the productive forest region which is moderately accessible to Canadians, there are about 34 acres of playroom per person — but this ratio has declined by 42 per cent in the last 30 years.

Within the agricultural belt, in which the bulk of Canada's population resides, the playroom has shrunk to 7.5 acres per person, while in Ontario and Quebec it is as low as 3.2 and 3.0 acres. And in five counties in the Toronto-Hamilton region the area is one acre or less.

And as for a tourist playground, the writers might take note of a recent survey of 94,000 square miles of forest belt in northwest Saskatchewan. The survey showed that of the 566 miles of shore line on four large lakes, about 75 per cent was lined with rough boulders and steep banks 25 to 50 feet in height which

made approaches by wandering tourists nigh impossible. Swamp and muskeg barred entrance for the remainder. Only three large sand beaches offered safe anchorage and building land. Only one beach was accessible to a new highway constructed through the area.

These are among the many points made by W. M. Baker, recreation consultant for Hunting Technical and Exploration Services Ltd. of Toronto, in his background paper on recreation for the Resources for Tomorrow Conference this fall.

Mr. Baker suggests this image of limitless expanse of the Canadian frontier might have dulled appreciation of park needs in the country.

"Canada obviously possesses thousands of square miles of sparsely populated forest land. As long as the rural landscape remained open and available for recreation it was difficult for many to become concerned about the park problem — particularly when there were many pressing financial demands for schools, highways, power, etc. The tremendous park acreage that has been accumulated in many provinces over the years obviously tends to allay fears. Few are concerned about problems associated with distributional deficiencies in the systems."

While noting a marked improvement in the situation in recent years, Mr. Baker says

the real problem of park development arises in the more densely populated areas where many alternative uses are competing for scarce land and water resources.

"Here substantial public investment is necessary and some difficult decisions must be made between alternative use possibilities. Leaving aside the problems of setting priorities for public expenditures, and assuming that funds are available for public park development, we still face the problem of determining priorities in the allocation of land for alternative uses."

The heart and core of the public outdoor recreation facilities rests on the public park lands which total 59,920 square miles. Three provinces have no areas specifically designated as provincial parks: Prince Edward Island, which operates only camp and picnic sites; New Brunswick, which is considering designating 650 acres of camp and picnic grounds as provincial parks, and Manitoba, which is considering establishing some sections of park and recreation areas as provincial parks.

Almost every province has gone in extensively for roadside camp and picnic grounds, including a co-operative program with the federal Government on Trans-Canada Highway picnic areas and camp grounds program.

But a complication has developed. In areas where local and regional park developments are inadequate, the roadside developments are taken over by local residents making use of them for what are essentially local park purposes, so that there is little or no room left for the traveling public.

Mr. Baker points out a further anomaly in the distribution of the federal Government's 18 national parks, covering 29,278 square miles. About 59 per cent of the national park area is in regions far distant from the settled areas of Canada. Quebec and Ontario, which have 63 per cent of the country's population, have less than 1 per cent of the total area—Quebec, in fact has no national park.

The expert doubts if this distributional limitation can ever be overcome, for there are no areas suitable for development as national parks near the populated areas of Quebec and Ontario. He did see the possibility of a national park at some point on the shore line of the Upper Great Lakes.

Ontario is a Johnny-come-lately in its provincial parks system, only now beginning to catch up with the demand. Its 74 provincial parks cover 3,321,000 acres. The demand on park facilities in the heavily populated areas is illustrated by the fact that in 1960 five square miles of park land operated by conservation authorities in Southern Ontario received 1,375,000 visitors, about 60 per cent of the total attendance at all provincial parks in the south and 30 per cent more than enjoyed by the 3,308,000 acres of provincial parks in the north. These small areas had a 295 per cent greater attendance than the 1,760,000 acres of Algonquin.

"There is no doubt that the strategic location of the parks of the conservation authorities, particularly with respect to Metropolitan Toronto, is the critical factor involved. Here the expansion of park facilities is at least 15 or 20

years too late. Sizeable strategically located parks along the shore line of the Great Lakes were shut out as early as 1910 in the absence of substantial land purchases. Land acquisition costs have now become enormous."

Mr. Baker, in trying to find some way of getting the country out of the sad state it has found itself in providing adequate recreational facilities for the general public, stressed the need for thorough research in recreation land use.

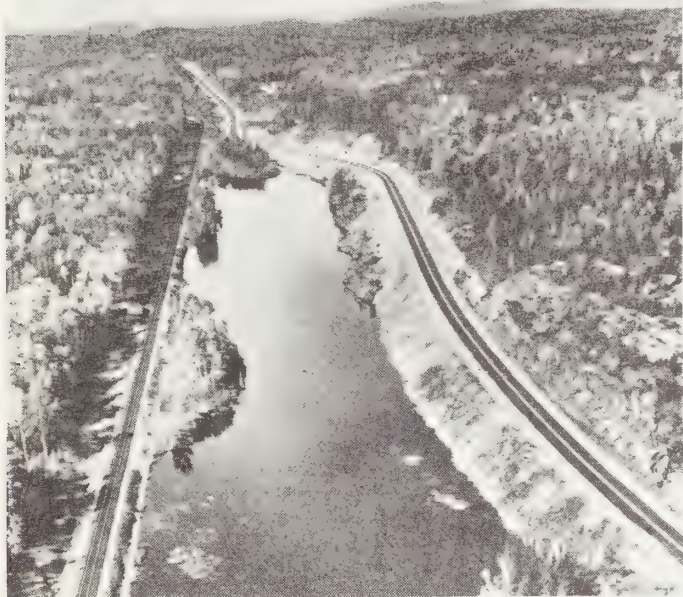
Basic research is required into such factors as location, climate, topography, woodland cover and the like, in their relation to various forms of recreational land use.

Public and private forms

of recreation land use must be taken into the inventory.

A recreation land use capability inventory would determine the quality, extent and location of the natural resources useful for various forms of recreation. By making a start now, it should be possible to obtain a survey of great value within two or three years, says Mr. Baker.

In calling for a co-ordinated and co-operative effort on all levels of government, Mr. Baker says, a central agency is necessary at the national level, charged with the responsibility of survey design, liaison with governments and some research operations. A similar agency is necessary at the provincial level.



Unlike this area near White River, much of Canada's northern playground is inaccessible.

BNA Act and Natural Resources

Resources for Tomorrow

Part 14—July 5, 1961

An accusing finger has been pointed at the federal Government for its lack of a clearly defined national resource management policy. The accuser is D. W. Carr, Ottawa consulting economist, who has set down his complaints in a background paper for next fall's Resources for Tomorrow Conference.

"Responsibilities for national resources remain divided among 10 or more federal departments. As a result, there is a notable lack of co-ordination and leadership in the federal role," says Mr. Carr. The consequences are visible to the naked eye: abandoned lands, reduced or polluted water supplies, flooding, erosion, depleted fertility and the like.

At the provincial level, marked progress has been made under special new legislation and agencies, but again an outmoded legislative-administrative structure is proving a most serious obstacle to resource management.

Mr. Carr points a sympathetic finger, too. The federal Government is hamstrung by the complications of law in providing effective leadership. Under the British North America Act both the federal and provincial governments were given authority to pass legislation on agriculture. The BNA Act provides that should conflict arise federal legislation should take precedence over provincial legislation.

But the management and sale of natural resources were made a provincial re-

sponsibility, as were property and civil rights. However, court interpretations of the powers of the BNA Act over the years have injected a great deal of uncertainty into the definition of federal and provincial responsibilities, says Mr. Carr.

In some important areas of resource adjustment, such as inspection and grading, the responsibility for inter-provincial regulation is still not clearly established. In other areas this responsibility is divided among the 10 provinces or among the provinces and Ottawa, as is the case in resource management.

However, submits Mr. Carr, there is one area in which both federal and provincial governments can participate without conflict—in the research, services and direct financial assistance fields.

Mr. Carr says most apparent is the absence of a central or co-ordinating federal agency for resource adjustment. Federal adjustment programs are diverse and in the main ad hoc.

He blames this on the lack of definition by legislation of a federal policy for an over-all conservation and resource adjustment approach.

"No one department or agency has been given the responsibility for promoting such an approach, though demands for it have recently become more insistent. In these circumstances, co-ordination among the numerous federal departments and agencies as well as with pro-

vincial and municipal governments has grown more difficult and is becoming urgent."

Mr. Carr suggests Ottawa and the provinces have missed the boat on a comprehensive extension services program. While the provinces have the major responsibility it would be both more economical and more effective for the federal Government to channel financial assistance through provincial extension services than to set up its own ad hoc services.

"Provincial agricultural extension services are neither equipped nor financed adequately to do these extensive research jobs alone. But, with the organization and personnel they now have plus federal assistance by way of research and finances, they could give most valuable support to federal programs. But such co-operative action has been lacking in Canada."

The economist saw other areas of federal-provincial co-operation that are ripe for expansion: land use surveys and mapping, farm management research and advisory services in farm planning, federal assistance for provincial land utilization, development and conservation programs.

Mr. Carr says the ultimate objective should be maximum co-ordination at the level of the individual farm, watershed or other distinct resource areas. This is where co-ordination of resource programs is now most needed. For this purpose, it may be desirable, for example, to group together at the community level all activities of government concerned with agricultural resource adjustment under three main groups: action programs other than farm credit, education and related services, and farm credit. At the provincial level,

research is added to the education and regulation and other services become important. These would be extended further at the federal level.

At the federal level, Mr. Carr sees four critical steps that must be taken now:

- Defining clearly the long-run resource development objectives of the federal Government and enacting legislation to establish them.

- Co-ordination of all federal agricultural resource adjustment activities through one federal agency.

- Setting up an organization to explore and promote new avenues for federal co-operation with the provinces in the resource development field.

- Providing for a concrete program of federal financial assistance, research and action that would launch resource development on a comprehensive national basis and would provide both a guide and incentive to greater joint participation by provinces, communities, the agricultural industry and the rest of the economy.

In provincial organization, the greatest need in most provinces is for a clear recognition of the specialized nature of the over-all resource adjustment task and a clearer outline of provincial policy.

A key problem at all levels of government is personnel, the requirement for people with special competence, enthusiasm and devotion.

"Progress in resource development in Canada will turn largely on how many, and how soon, such personnel can be put to work on the federal task. Such men of special vision, versatility and competence will be needed, of course, from the federal right through the provincial to the community level."

Wasted Effort on Recreation

Resources for Tomorrow

Part 15—July 11, 1961

In the view of E. R. McEwen, deputy head of the recreation branch, Royal Canadian Air Force, Canada's public recreation presents a picture of confusion, duplication and waste. Compounding this felony are the serious gaps in the services provided.

Mr. McEwen, venting his spleen in a background paper on recreation for this fall's *Resources for Tomorrow* Conference, complains about the lack of co-operation among the federal, provincial and local governments in trying to formulate some recreation policy and pattern.

"At both the federal and provincial level there are over a dozen different departments and agencies with almost no co-operation among them and services emerge from collections of little independent administratively unrelated empires. The confused administrative approach by the senior governments has inspired a similar multilateral administrative development for recreation in local governments. As a result there is a great deal of overlapping and duplication of effort and further there are many areas of need that remain unsatisfied."

Mr. McEwen says that one basic requirement is a clarification of the relative roles of public and voluntary agencies. To the public agency, recreation is like education, meeting a basic human need in modern society. By comparison, many voluntary agencies use recreation as a means to another end — citizenship training, religion, character building and the like. A way must be

found to create an effective partnership between these two types of agencies to meet the total leisure needs of Canadians.

"Private agencies should recognize that the public programs are in the process of expansion and be prepared to adjust their roles as the situation requires. The fact of being first in the field is not a valid reason to resist change."

The branch deputy points an accusing finger right at the top, at the federal Government which lacks an agency to give leadership and systematic support to the recreation movement as a whole.

"Much of the confusion on the provincial and municipal level arises from the lack of guidance and assistance from the national level. The problem would be eased if the federal Government would co-ordinate what it is now doing to support Canadian recreation. To this end it should establish effective working relationship among such agencies as the National Parks branch, the recreation branches of the armed forces, the CBC, the Canada Council and the youth programs of the Department of Agriculture."

On the provincial level, where governments provide considerable assistance to community recreation, a hodge-podge of unrelated agencies endeavour to meet the needs of municipalities. As a result of this unco-ordinated approach administrative confusion is created at the local level.

But the heart of the unhappy matter is found at the municipal level where the overlapping of service is common. Mr. McEwen says it is not unusual to find, for example, a parks board operating independently of the recreation commission where two exist.

"The consensus is that all the public recreation services need to be drawn together to make one cohesive public service devoted exclusively to serving the recreation needs of the community under the structure of a department or a commission, staffed by qualified recreation leaders. It is also advocated that this agency be program-oriented and have control of all public recreation facilities such as parks, playgrounds, playfields, municipal golf courses, beaches and the like.

The recreation expert makes some specific recommendations:

- A recreation authority commission or Crown corporation within the federal Government to assist the provinces in this area of work.

- Establishment of a recreation council at the national level, composed of appropriate representation from public and voluntary agencies providing nation-wide services. The council would provide a general clearing house service for the recreation movement, serve as a medium

for joint planning and co-operative action among all the public and voluntary agencies, evaluate current programs and services and recommend new services, and serve as a national forum for the discussion and consideration of matters related to the leisure needs of Canadians.

- Creation of a provincial recreation department in each of the provinces to consolidate and administer the recreation services now being provided by the provincial Government and to co-ordinate activities with the local governments.

- Establishment of a recreation council in each of the provinces, composed of representatives of voluntary bodies and provincial Government agencies. Like its national counterpart it would have standing committees for each of the segments of specialized interests, such as sports, youth and culture.

- Establishment at the local level of recreation departments to have the single purpose of assuring adequate opportunity for all members of the community for leisure activities in keeping with their interests and needs.

- Organization of an advisory council to be associated with the local department, composed of representatives from all the major agencies providing recreation services in the community.

Chickens Like Automats For Atomic Age Farms

Resources for Tomorrow

Part 16—July 12, 1961

Cows that produce milk like water out of a tap, calves and pigs plump, succulent and ripe for the roaster in only a matter of weeks, chickens laying eggs like automats—all this is possible for the Canadian producer if he and the scientists work together.

"What is needed now are developments to put animal production in the jet turbine and atomic age," says J. R. Weir, Dean of the Faculty of Agriculture and Home Economics at the University of Manitoba, writing in a background paper for this fall's Resources for Tomorrow conference.

"If we on this continent excuse ourselves from the need to initiate and carry out constructive breeding research because of our immense surplus of animal feeds, we may be condemning future generations to lives void of the finest and most nutritious of human food-animal products."

Mr. Weir says that despite the tremendous potential for improved livestock and poultry production, progress has been hampered by the insufficient amount of research work, by the lack of funds to keep large flocks and herds for breeding research, the lack of well-trained men in the field, and by a more or less universal clinging to the status quo of the art rather than the acceptance of the science of animal breeding as the superior method.

Many improvements have

been made in livestock and poultry production but it is difficult to assess which of these is due directly to breeding rather than to improved nutrition, management and disease control. All have played a part. However, says Mr. Weir, it is conceded that chickens lay more eggs, hogs take less time to be prepared for market, mortality is lower in all classes of livestock, fleece weights in sheep are heavier and dairy cows produce probably twice as much milk as they did 50 years ago.

Perhaps more important are the improvements which should result from the application of knowledge gained through research and experimentation in animal and poultry breeding. Hybridization and the formation of new breeds and strains already have resulted in modern broiler production efficiency where two pounds of feed are needed to produce one pound of broiled, and where an average of 260 eggs per hen housed is a reality. Application of known principles could result in similar gains in livestock, says the Dean.

Swine breeding experiments have shown that a 200-pound pig can be produced in four months with as little as 2.5 pounds of feed for each pound of live pork produced. Calves of more than 600 pounds at six months of age have been produced, compared with an average of 400 pounds or less. Gains of four pounds a day in beef cattle

on feed are possible, which is nearly double what is being achieved in the field. Even though dairy production has practically doubled per animal unit in the past 50 years, it seems quite feasible that a similar rate of increase is possible in the future.

Many cows produce more than 20,000 pounds of milk a year and it should be possible, using the best scientific pro-

cedures, to achieve such production on a herd basis, and even on a national basis.

"Time is short for the animal breeder," says Mr. Weir. "Some biologists speak of man outrunning his food supply. If such is the case, then unless some radical developments are made, man's meat, milk and egg portion of his diet will be meagre indeed."

Darkness Ahead in the Forests

Resources for Tomorrow

Part 17—July 19, 1961

There will be darkness before the dawn of new and profitable markets for Canadian forest products. The brightness of that dawn will depend on industry's performance and Government policy.

This is the assessment of the future made by D. A. Wilson, head of economic planning and market research for the Canadian International Paper Co. in a background paper for this fall's Resources for Tomorrow conference.

"Future markets for forest products are expected to be large, growing and highly competitive," says Mr. Wilson. "While the longer-term possibilities are promising, the short-term outlook—the next three to five years — is not so favorable. Excess pulp capacity is expected during this period. Prices of pulp are now depressed. Profitable development of overseas markets will require more favor-

able prices or, on the other hand, lower costs in Canada."

Mr. Wilson says it is assumed that prices will be at levels profitable for Canadian industry, but he cautions against taking action on short-term problems that could restrict the longer-term prospects.

The forest industries provide Canada with its largest class of export, providing 30 per cent of the total Canadian export. Last year the value of exports of forest products was \$1,592,000,000. Newsprint, lumber and woodpulp together accounted for 90 per cent of that total, with the United States taking 79 per cent and the United Kingdom 11 per cent.

Canada marketed 20 per cent of all woodpulp and 55 per cent of all newsprint produced in non-Communist countries in 1959 and is the world's leading exporter of lumber, pulp and paper.

Briefly, Mr. Wilson sees these prospects for the future:

- Newsprint consumption may increase about 60 per cent in exports within 15 years. Annual shipments to the United States should increase by about 2,240,000 tons and overseas exports may double to 2,700,000 tons.

- While world demand for paper is certain to grow, Canada will meet increased competition in the next 10 years in the United Kingdom, one of her larger markets, as new European free trading areas develop.

- Larger pulp exports to Europe are forecast, but in Asia and Latin America new processes may cut off the demand.

- A 30 per cent increase in lumber exports is forecast, mainly to the United Kingdom.

"The eventual outcome will be greatly affected by Canadian industry's performance and by Government policy," says Mr. Wilson. "Vigorous development of overseas markets by Canadian industry will be required if exports are to be expanded. Any handicaps placed on Canadian industry by governmental policies, which would reduce its ability to compete, could prevent the attainment of the projected estimates. In fact, realization will require greater co-ordinated effort on the part of all 11 governments, and of government with industry, labor and other interested groups. These efforts should be directed to the fields of forest policy, commercial and financial policy, and research in both the physical and social science aspects."



Outstanding signs drive home lessons of conservation and forest protection.

Fishermen Won't Abandon Ship

Resources for Tomorrow

Part 18—July 20, 1961

A U.S. economist has taken a hard look at the Canadian fisheries industry and finds the view disturbing.

James A. Crutchfield, Professor in the Department of Economics at the University of Washington, in a background paper for this fall's *Resources for Tomorrow* conference, states bluntly that despite attempts at efficiency and progress in the industry, the fisheries have a long way to go.

He finds the British Columbia fisheries fairly well advanced as far as efficiency in the engineering sense is concerned, but there are far too many of them working well below full capacity.

On the Atlantic coast low incomes have reinforced other obstacles to mechanization and modernization, not the least of which has been the lingering effects of past restrictions on gear. The necessity of regulating fishing effort has brought with it a variety of techniques for reducing catches, virtually all of which increase the cost.

"The very nature of fishing rules out the degree of stability in employment, prices and incomes, which many other occupations enjoy," says Mr. Crutchfield. "Whether this is, on balance, more an attraction to the venturesome than a deterrent to those who value security cannot be readily answered. What is needed is an environment in which the level of incomes is suf-

ficiently attractive to make the choice an economically feasible one to a labor force able to move elsewhere if necessary."

Mr. Crutchfield is particularly critical of the Atlantic fisheries, where poverty persists in some areas in the face of general prosperity in the nation. The crux of the problem is mobility. The inevitable tides of change require shifting of human and physical resources.

"Quite apart from the resistance of individual families to change, the pressing economic conditions which made it essential have often resulted in prices and incomes so low as to make it financially impossible. The incentive to break with the past is usually greatest at precisely the times when the ability to find alternative jobs and finance the move are lowest. The necessary outflow of excess labor from the east coast fisheries has been greatest when relative prices of fish were quite favorable."

These barriers to reduction of excess labor in declining fisheries tend to reinforce resistance to equally necessary improvements in technology. With abundant supplies of underemployed labor, it is not necessarily bad sense to use it in small and fragmented processing and marketing operations.

"This may not be efficient in an engineering sense, or even in an economic sense,

over the long run; but it is perfectly logical short-run reaction. Similarly, there will inevitably be greater resistance to the introduction of larger scale, capital-intensive fishing methods as long as labor is readily available at wages well below the opportunity level in other sectors of the economy. It need hardly be added that political pressure to restrict new types of gear, particularly if they are labor-saving, can be mobilized much more effectively in a situation of chronic underemployment. The effects of this are still very clear in the structure of the Atlantic coast fleets."

Mr. Crutchfield submits that while much progress has been made in the restoration of some semblance of economic health to the Atlantic fishing communities — due largely to the development of strong markets for frozen fillets and sticks—there are obstacles which prevent the fisheries from resolving their basic problems through markets alone.

The steady decline of the salt cod trade and herring is a gnawing problem.

"What is really needed is a process to make cod taste like salmon, or a species of lobster which reproduces like herring," says Mr. Crutchfield. "Failing this, the unfortunate combination of declining demand for abundant fish and supply limitations on those in consumer favor will leave weak spots in the Atlantic fisheries which tend to become self-perpetuating."

Turning to the B.C. fisheries, Mr. Crutchfield says it is abundantly clear that despite the strengthening economy of the industry the end result has been that it costs much

more to catch about the same quantity of fish today than in the past.

The economist says that on the surface the level of income of the individual B.C. fisherman would not be a matter of great concern to government if the regional economy were growing at a pace sufficient to provide good job alternatives. But he has two important qualifications: First, even though the men may be relatively mobile, the capital equipment is not.

"A persistent tendency to hang on rather than to abandon the boat and gear—bolstered by the perennial hope of the Big Year—can cause equally persistent hardship for large groups of B.C. fishermen even when other industries have jobs to fill."

Secondly, the money incomes of individual fishermen do not necessarily exemplify the efficiency in the industry. While in terms of total value the industry has held its position among the primary producers in the region, its real output has barely been maintained, offers no great possibility for long-run growth, and has absorbed more rather than less productive effort in the past 20 years.

"The primary concern for the future must be to expand modestly the output of British Columbia's high-valued catch with fewer men and fewer and progressively more effective fishing units."

Mr. Crutchfield finds the performance of the fisheries as producers disappointing.

"There are definitely too many men and too many units of gear by a straightforward test: the same resources used elsewhere would produce other things of greater value."



Small, efficient boats such as this \$30,000 craft have helped Maritime fishermen.

A Land of Riches —But Few People

Resources for Tomorrow

Part 19—July 27, 1961

The Mackenzie District of Canada's Far North is 493,225 square miles. Ontario could rattle around inside its borders with 105,000 square miles to spare.

But the 14,400 persons who live in the Mackenzie District would be less than a capacity crowd for Toronto's Maple Leaf Gardens which covers one city block, or approximately 1/100th of a square mile.

In the Yukon Territory, the fastest-growing area in the North, each Yukoner has 14.6 square miles of elbow room.

In the Mackenzie there is 35.2 square miles per person. But in the barren Arctic regions there is 76 square miles per person.

B. G. Sivertz, director of the northern administration branch of the Department of Northern Affairs and National Resources, uses these figures in his background paper for this fall's Resources for Tomorrow conference to illustrate one of the Far North's anomalies: a land full of riches, nearly empty of people.

The director expresses his concern over the native Indian and Eskimo population—now in minority numbers as more and more whites answer the call of the north.

The Indians are found as far north as the tree line. Many maintain permanent residences but travel extensively throughout the bush country searching for fish, game and fur, the traditional backbone of the economy. In recent years, improved education has made it possible for many Indians to find steady employment with wages.

Above the tree line the Eskimos wrest a meagre subsistence from an area where few others could survive. While the past dictates of survival forced them to live a scattered and nomadic life they, too, are beginning to come together in communities offering education, health and security. Many have entered wage employment during the past five years and have begun to live in houses in settlements with the white man as their neighbor.

The present potential labor force of the Territories is estimated at 8,500, of which 4,200 are in regular wage employment—half of those alone being employed directly by the federal Government. The remainder either live entirely off the land or live on subsistence hunting, fishing and trapping with casual or seasonal wage employment.

The majority of jobs in the Territories which pay a reasonable income are held by whites who have moved into the area on the basis of their educational qualifications or previous experience.

"The plain hard facts of the case are not that the indigenous people do not want

this work, but that they lack the education and the experience needed to compete with the outsider when such jobs are available," says Mr. Sivertz. Currently, the Government is aiming to close the educational gap.

Of the 4,000 men in the potential labor force who are not currently working, an estimated at 1,000 enjoy a reasonable standard of living from the resources of the land. This leaves 3,000, who with their families, lead a marginal or sub-marginal existence and at the rate of present programs, says the director, it will be many years before this figure is reduced to zero.

"The fact also remains that this potential labor force is growing rapidly and, if the rate of population growth of the past decade continues for the next ten years, jobs will be required for a total of 14,500 men by 1971."

If the rate of growth from 1951-61 continues, the population of the North West Territories will reach about 38,000 by 1971. New health measures, improved housing conditions and the creation of more centralized communities and government field services assure the far northerners of longer and healthier lives in the future.

"Thus, at least numerically speaking, there will be an adequate labor force available for the development of the resources of the North in years to come. This points directly to the need for an educational program which will enable these people to compete for work wherever it exists in Canada, a program which will also enable the families of employable males to adjust smoothly to such a pattern."

Fresh Fruit for Eskimos? Home Grown—in Winter?

Resources for Tomorrow

Part 20—July 28, 1961

Picture an Eskimo in the dark of a long Arctic night suddenly getting a yen for a juicy orange, or perhaps a banana. He just plucks the succulent fruit from his own tree and savors the fresh home-grown flavor.

Impossible? No, not only possible, but feasible, says B. G. Sivertz, director of the northern administration branch of the Department of Northern Affairs. The possibilities are indeed there through the adaptation of hydroponic gardening in the Far North.

Mr. Sivertz discusses these possibilities in his background paper for this fall's *Resources for Tomorrow* conference.

A hydroponic garden, simply explained, is a garden of water to which the proper nutrients are added, and in which seeds are planted and allowed to germinate. Japan and Israel have had amazing success with the technique. The hydroponic farms in Japan produced the full requirements of fresh vegetables for the 200,000 men of the United States Eighth Army during the Korean War. In land-poor Israel hydroponics have been introduced to increase the production of much needed food-stuffs. Mr. Sivertz envisions similar success in the Canadian Arctic.

"The long hours of sunlight during the brief Arctic summer would permit fast production of many types of vegetables on a commercial

basis if the hydroponic method were adopted and, by using artificial sunlight, production could be maintained throughout the winter as well. If energy in abundance is available from petroleum or nuclear sources in the high north, there are real possibilities in agriculture along appropriate lines under roofs."

Mr. Sivertz says successful hydroponic experiments in Iceland have concluded with the growing of bananas and tomatoes through the use of water from the hot springs which abound on the northern island.

The problem of food supply in the burgeoning Far North is an important aspect of future development. As the population of the Yukon or North West Territories increases and the native residents become more sophisticated, the demand for fresh meat, eggs, milk and vegetables will grow.

Many areas in the southern part of the Yukon and throughout the Mackenzie Basin have good agricultural soil suitable for farming. In the Yukon there are 520,000 acres and in the Mackenzie 2,225,000 acres of arable land. However, most of this is heavily wooded and large-scale farming is not practical.

Studies in the area indicate that it is possible to produce, with a reasonable degree of success, such vegetables as potatoes, carrots, beets, peas, cabbage, turnips, cauliflower, radishes, lettuce and onions.

Such cereal crops as oats, wheat and barley are grown as far north as Dawson in the Yukon and Fort Simpson in the North West Territories. Some cereals have even been ripened as far north as the Arctic Circle.

In some regions the growers beat the hostile weather with hotbeds, cold frames, greenhouses and plastic shelters.

One example of what can be accomplished in the north is the Willoughby farm, located 150 miles north of Whitehorse. This two-man operation produces fresh meat, eggs and vegetables for the local district. With the exception of some imported proteins which are added to the feed, the farm is completely self-supporting. A head of 50 cattle is maintained along with a piggery and a large flock of chickens. Last summer the Willoughbys produced, not only fresh beef, pork, poultry and eggs, but eight tons of potatoes for their customers, as well as their own supply of feed grain and hay.

Although there are no commercial greenhouses in the Territories, many individual residents have their own and some mining companies are considering attaching small greenhouses to the houses provided for their employees.

At the United Keno mines in the Yukon, where coal is plentiful, a large greenhouse produces fresh salad vegetables for the mining community.

Small private hothouses are in operation in the Keewatin District, the eastern Arctic and the high Arctic, and fresh vegetables have been grown as far north as Pond Inlet, on the northwest coast of Baffin Island, 400 miles inside the Arctic, during the summer.

"Thus, while it is unlikely that agriculture will ever become a major industry in the northern regions," says Mr. Sivertz, "it is a resource which has hardly been touched to date and which is worthy of an intensive development program in the future."

What's 15,000,000 Acres?

Resources for Tomorrow

Part 21—August 1, 1961

So vast is the flow from Canada's cornucopia that if 15,000,000 acres of her cropland now under production were left idle, the loss would hardly be noticed.

And, if a little Canadian production ingenuity were put into action it is conceivable that from 20 to 25 million acres could be pulled out of service before the demand for the fruits from the cornucopia exceeded the supply.

H. Van Vliet, head of the Department of Farm Management, College of Agriculture, at the University of Saskatchewan, throws out this startling statement in his background paper for this fall's Resources for Tomorrow conference.

Tentative conclusions from a survey of resource potential suggest that Canada is likely to retain an excess of producing capacity at least beyond 1980, amounting to 4

to 5 per cent of total product output, or the equivalent of the production of 4 to 5 million acres of average Canadian cropland. Translated into an acreage of the poorer cropland, in the form of land closest to the margin of effective agricultural use, the ratio would suggest 10 to 12 million acres of the least productive improved land.

"Allowing a wholly modest upward adjustment of output on remaining acreage based on freer market outlets and minimal production incentives leads to the possibly shocking deduction that Canada could get along — without handicap to essential agricultural supply and without significant shift in relative consumption prices of food—without the benefit of 15,000,000 acres of its less productive cropland," says Mr. Van Vliet.

The farm management expert notes that well over half of the excess acreage is located on the Prairies, where the problem of man-land ratio is becoming exceedingly acute. There, the provinces are concerned with the pressures placed on the small farm units being forced out of existence by the surge of new farming techniques and technical capacity requiring tremendous capital investment—and the inevitable assembly of large farm units as the only means of making a profit.

Mr. Van Vliet estimates that fully 70 per cent of the Prairie farm units of the Prairie region are undersized in terms of an income standard implying acceptable returns to labor and capital investment.

"It carries the implication, perhaps quite as disturbing as that relating to the aggregate resource potential, that effective restitution of income parity for farming on the

basis of unit-size adjustment would require at least a 40-per-cent elimination of existing commercial farming units in the period to 1975. This would not carry beyond a concept of family-type operating units; it would imply more uniformly developed family farms in terms of available mechanization and adequate type-of-farming specialization. In turn, allowing for a well-distributed force of internal expansion by intensification, based on an essentially favorable assumption of domestic demand progression, the above estimate would imply at least a 60-per-cent reduction of commercial farm numbers in the interval to the end of the current century."

Mr. Van Vliet categorizes deficient land utilization under four broad categories: Under-use, inappropriate forms of use, inefficient use and inadequate conservation of land resources.

They form the basic conflict between individual efficiency and the aggregate supply position, which, Mr. Van Vliet submits, is so commonly overlooked in interpretations of the agricultural problem.

"It implies that in a situation of surplus output potential aggregative supply-demand adjustment has to precede internal efficiency adjustment if the latter is to retain effectiveness."

Mr. Van Vliet says that if the pressures now bearing on Prairie agriculture are to be absorbed by internal adjustment, the needed directions of adjustment are reasonably discernible, if not patently obvious. They imply:

- A contraction of farm production potential.
- A gradual shift of utilization.
- A reduction of farm population.

Wasted Acres And Regional Plans

Resources for Tomorrow

Part 22—August 2, 1961

A Toronto planner has taken a look at Canadian regional planning and development and found it a hodgepodge of ingenuity and vigor, and without focus, particularly on the greatest need: the persistent problems arising out of the gravitation of Canadians to urban-centred regions.

"In the light of the nature of planning regions, of the far-reaching and difficult-to-achieve goals of regional planning and of the institutional requirements, it is not surprising that in most parts of the country performance falls far short of the challenge," says L. O. Gertler, director, long range planning division of the City of Toronto Planning Board, in his background paper for this fall's *Resources for Tomorrow* conference.

Examining the development of regional planning in Canada, Mr. Gertler has found these main features:

- The planning function covers the urban-centred region in only a few areas, namely the lower mainland region of British Columbia and the planning districts of Alberta.

- In all provinces, with the exception of Alberta and Newfoundland and, in a qualified way, Manitoba and Quebec, the regional planning bodies that can be established are advisory — plans solemnly passed by

boards can be uncereemoniously rejected by municipalities.

- In most areas, provincial financial support for joint or regional planning agencies, while often substantial, is not provided on a regular basis.

Mr. Gertler points out that every provincial planning system has its own history and its own inner logic. Consequently the logic that produces regional or joint planning boards with neither the authority to dispose of the matters that are their unique concern nor, because of financial structures, with staffs qualified to do a competent job, the result is not joint planning but joint frustration, accompanied by public disrespect and demoralization.

Mr. Gertler is not all sour grapes in his examination. In almost every province there are statutes, policies and programs that suggest much creative potential and promise, he says.

- In B.C., for example, there is the capital region around Victoria and the lower mainland region around Vancouver, examples of solid research and imaginative planning proposals. In Alberta there is the framework of a soundly conceived and effective regional planning system being built in the planning districts of Edmonton, Calgary, Red Deer and Lethbridge.

• In Saskatchewan the province has initiated the South Saskatchewan River Development Commission, a resource-based planning agency designed to co-ordinate the irrigation, power, flood control, recreation and water supply aspects of the South Saskatchewan River project.

• The evolution of local government and planning is exemplified in the new metropolitan area plan for Winnipeg, and, too, there is the establishment of the Manitoba Development Authority to co-ordinate natural resource development and stimulate general economic development.

• In Ontario, there is the Metropolitan Toronto plan, the work of the 30 conservation authorities in flood control, reforestation and recreation, and the comprehensive regional studies of the community planning branch.

• Quebec is currently reviewing the whole field of regional planning in its economic and physical aspects.

• Three levels of government in New Brunswick are engaged in the redevelopment of Saint John.

• Federal - provincial co-operation to solve a regional problem is seen in Nova Scotia's Maritime Marshland Rehabilitation Administration, which has reclaimed or protected about 80,000 acres in 10 years.

• In Prince Edward Island there is the rural beautification movement and an increased interest in community planning and sound resource development as indicated by the recent appointment of a provincial planning officer and a director of research.

• And in Newfoundland,

there is potentially effective regional planning legislation, still largely unused, and the beginnings of a comprehensive systematic approach to social, economic and physical aspects of development regions.

Canada today is at a stage in its development where, generally speaking, its institutions of government have not responded to the basic population trends that are producing a pattern of urban-centred regions. The resulting inability to cope with the problems that are thrown up is a source of increasing anxiety.

A survey has shown that for each acre consumed by Canadian cities for purposes of development 2.5 acres are wasted, that is, held out of production for speculative purposes, or for very low-density development.

The over-all direction of Canadian culture in this issue of regional development is by no means clear, Mr. Gertler sums up. The evidence suggests on the one hand that Canadians are still attempting to meet the new conditions and problems produced by the economic and population growth and the rise of urban-centred regions in terms of the administrative techniques of the past, and to that extent are tolerating the waste and abuse of the resources.

On the other hand Canadians are moving toward the use of a new technique, which, because of its focus on the urban-centred region, its positive goals in relation to environment and resources, and its articulation with levels of government above and below, is a promising device for making the most of what they have.

Endless Reams of Publicity

Resources for Tomorrow

Part 23—September 12, 1961

Canada's renewable resources are her most precious asset but few Canadians appreciate the fact, not so much due to lack of interest but because so little effort has been made to tell them about it.

Of all the money spent on resources administration among Canadian governments in 1959, less than 1 per cent was spent on public information. And in the vast complex of government information services at all levels there are only 12 persons who could be deemed qualified as trained resources information and education personnel.

The question of public information will be one of the key problems to be tackled by delegates attending the Resources for Tomorrow conference in Montreal. Fraser Symington, research associate for the conference, has explored the situation in a background paper for this week-long meeting being sponsored jointly by the federal and 10 provincial Governments.

Mr. Symington discovered that, with two partial exceptions, resources departments have not defined their information policy with regard to its place in the administrative hierarchy, its relation to the total information effort of the Government, and the management of resources.

"The value of the material they produce may be assessed mainly in terms of satisfying immediate administrative requirements rather than of meeting specific goals in public information and educa-

tion."

As a result of this floundering, most information and education agencies appear to grind out endless reams of material without any particular purpose, and without any means of assessing the effect of their programs.

The information and education specialists on the other hand complain that resources administrators and the government executive tend to spring resource management programs on the public without preceding them with a long-term, planned program of information, and, if public reaction proves adverse, to give the task of righting the matter to the information and education agency.

"Information and education personnel believe that a well-planned series of public information programs, drawn up with reference to the department's long-term plans of research and management, would do much to avert such crises. To be effective, information and education practice should be directed toward creating a climate for positive reaction, rather than counteracting a negative reaction."

Mr. Symington notes a neglect of resources education in the schools. While resource study does receive attention, there is no development of a conception of the interrelationships among living things. Many fallacies and outright inaccuracies and mistakes occur in material. The amount of resource knowledge absorbed by the students is measured only by the degree of personal interest taken in the subject by the teachers.

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TRANSCRIPTION OF TAPE RECORDED SPEECH DELIVERED
BY THE PRIME MINISTER, THE RIGHT HONOURABLE
JOHN C. Diefenbaker, P.C., Q.C., M.P., AT THE
"RESOURCES FOR TOMORROW" CONFERENCE,
MONTREAL, OCT. 23/61

Mr. Chairman,

Premier Lesage

Premier Shaw,

Mr. Mayor,

Ministers, Federal and Provincial,

Ladies and Gentlemen:



I welcome the opportunity to be here at this, the first truly national conference on conservation of the renewable resources of the nation and I say at once that it represents to a commendable degree the co-operative spirit of the various provincial governments that are represented here, all the provincial governments of Canada, and as I have been informed since arriving here this evening of the discussions that have taken place, the papers that have already been read and the speeches that have already been given, I think it can be safely said that this event in co-operative conservation effort was a full recognition as the Premier of Quebec said, of the constitutional situation of our country and the jurisdictional position thereby created insofar as resources are concerned can be brought into agreement.

I want to say this, Mr. Premier, that I've listened with a great deal of interest to my colleague speaking French, (laughter) I try on occasion myself, (laughter) indeed it isn't so very long ago and some of you have heard this - someone speaking of my capacity in that direction said that he just loved to hear me speak French on the national T.V. for when I

did there wasn't an English-speaking person from Newfoundland to Vancouver Island who knew not one word of French who couldn't understand everything I said when I spoke in that language (applauses). I was able to follow you, Mr. Premier, with some difficulty, (laughter) but I didn't find that when Dinsdale and Hamilton entered the field of speaking French.(laughter) They speak my kind (laughter) Indeed may I say this, a year or so ago I visited one of the countries in Central or Southern America and its a Spanish country, I prepared my speech all the way down, I had the instructor there. I delivered that speech at the airport in response to the national welcome and on the way into the City, the Capital city afterwards, my host said we -- you speak Portugese with a French accent. (laughter)

M. le president, Je vous remercie de m'avoir fourni l'occasion de vous adresser la parole à cette importante conférence. La ville de Montréal a connu bien des moments historiques et devant une assemblée aussi imposante où sont représentés le gouvernement fédéral et tous les gouvernements provinciaux sous le haut patronage du représentants de la reine au Canada, son Excellence le Gouverneur-Général. J'ai l'impression que c'est une autre page de l'histoire du Canada qui s'écrit ici. A tous et à chacun, je souhaite la bienvenue et je formule pour cette conférence mes meilleurs voeux de succès. (Applauses)

Mr. President, I believe that a plan and program, not of direction but of suggestion, can be drafted in co-operation between the representatives here not only of the Federal and Provincial Governments but also of the other facets and segments of Canada, which while implicitly maintaining the constitutional division of powers, can glve a new meaning to a national concept of conservation. Indeed I think this is but another step in the

building of that one Canada wherein under the constitution, there shall be strict observance of those constitutional rights that shall be unchanged, that we in a spirit of co-operation can work together on behalf of that field of action that is so necessary in the world in which we live.

I thank my colleagues and the ministers of the various provinces, the members of the federal and several provincial civil servants organizations and bodies and all associated with them who have organized and worked for so long to make this meeting possible and provide the information for the background documents. May I say in this connection that I have perused those background documents most carefully and they represent indeed a worthy effort among those who contributed to their compilation.

I want to say more that all over this nation there is a new awareness of conservation, there's a concern about the pollution of water, at this very hour there's deep concern over the pollution of air. Today we're all affected by this. Khrushchev again, in testing used two of the larger bombs, the largest ever before used and thereby polluting the atmosphere of innocent nations and peoples everywhere in the world. One of those things that represents a careless attitude and disregards the rights of humanity of all mankind to air that is clean and pure. I want to add this that Canada has had a great deal of experience in this connection. Not going into particular this evening but some of you will recall that in our relations with the United States in 1935 we arrived at a basis respecting a certain industrial concern in Trail, British Columbia, we arrived at a basis where that concern pouring poisonous things into the air was as a result of the co-operation between these two countries, placed in a position where its rights, and the rights of those which otherwise would not have

been recompensed were brought into a just imperfect position.

Until recently its been taken for granted that there would always be pure water and fresh clean air. I read this morning a very recent book written by an American in which he deals with conservation, Charles W. Ferguson. He said this "I've read for years in the field of conservation, trying to acquaint myself with the policies of government and private enterprise that make for the best use of our ailing soil.

Naturally a certain amount of what has flowed over me has left a kind of alluvial deposit of information some of it rich but the summary of the problem and aim that sticks with me and comes to mind most often is that of the Texas forest ranger who said that the object of all conservation effort is to hold every drop of water where it falls and if you can't do that make it walk off instead of run off. That was one view of conservation and there has been a recent widespread and related recognition of the need to preserve wholesome water, a natural resource, one of those resources which we believe to be unlimited. A resource that will be in short supply by 1980 unless action is taken and unless action is taken by organizations and groups such as this, water shortages will hamper future growth indeed is already threatening that in various parts of our country.

Canadians must take positive measures for the preservation and development of our wildlife. In the days of my boyhood on the Prairies the numbers seemed unlimited. In the days of my boyhood the majestic whooping crane seemed to be the chief leader and guide of almost every flock of sandhill cranes. These are the things that affect the average Canadian and when some years ago I announced the desirability of such a

conference being convened, I found I was voicing an awareness that resources and their conservation are fundamental in shaping Canada's future.

We meet together in that spirit referred to by the Premier of co-operation fully respecting the constitutional division of responsibilities, representatives of the Federal and Provincial governments and others have come together to explore common problems. The Federal government does not come in the position of a determinant, it is one of eleven governments with a secretariat under the jurisdiction of all governments and a steering committee comprised of one minister from each of the governments.

As the Hon. Alvin Hamilton referred to past experiences, we tried in the past. In 1909 Sir Wilfrid Laurier set up the commission, a conservation commission, essentially a federal agency which remained in more or less spasmodic effect until 1921. During those years there were conferences; since then there have been several kinds of resource conferences convened from time to time, respecting particular resources but their action is limited to little more than a series of speeches.

I'm impressed by the fact that this conference is of a different character, the climax of three years of effort, dozens of meetings, 80 studies with every emphasis and concern being laid on national, provincial and regional aspects. I see this nation as a whole within the constitutional fabric of confederation. I see it vital for co-operation and that Canadians as a whole developing a continuing policy of national expansion thereby we shall retain the control of the national, the political destiny of this nation. I see conservation as a necessity for more and more and larger fields of social justice, an ever increasing productive base is needed for larger revenues which can only be secured by a buoyant and growing economy. I see the necessity of a growth in productivity as the only way to national and

economic greatness. A rapidly expanding labour force with greater technological efficiency demands a vigorous development policy to make this nation stronger and more prosperous.

Internationally, we have to meet the communist challenge. It was emphasized by Khrushchev last week when he predicted as he said the triumph of socialism everywhere in the world, politically and economically, and those are his words.

This conference provides a systematic analysis of matters that have a direct influence on the well being not of any one province but of the nation as a whole and out of this conference and it won't solve all the problems or make recommendations covering all the problems but I see it as a birthplace of new ideas, new plans and new concepts. I see this as a priceless opportunity to preserve our resource heritage. That is the business of any one government. It isn't the business of private business either.

This conference will give a focal point around which the work done by industry and private organizations and individuals can be interpreted, integrated, correlated and publicized. Already the eyes of Canadians in every part of the country are on this conference. It will encourage Canadians to understand that conservation and resource development actually begins at home. It begins on every farm, every woodlot, every lake, every river, every game sanctuary and every nesting ground and every fishery in every region of every province and territory.

As I said a moment ago, I see this conference as a practical one which will bring forth well developed plans and schemes by which the renewable resources can be utilized wisely so that they may be replaced replenished and increased. This will be of demonstrable benefit to the

people as a whole to farmers, fishermen, tourist industries, labour and management.

It must be continuing, the plans must be subject to continuing review but there is need for some blueprint in the nature of continuity rather than the start and the stop and the uncertain uncorrelated programs that have existed in the past. For after all conservation is a dynamic concept, I believe that governments across the country must give consideration to investing a greater measure of financial assistance in conservation measures. I hope that out of this meeting will come a full co-operation of federal provincial and municipal governments in a continuing program.

I want to make abundantly clear, though it isn't necessary I have said it so often, the federal government must not, and will not interfere in provincial control and management of natural resources either directly or indirectly, but there's a widespread area where federal support of provincial efforts will be and can be beneficial within the constitutional framework. (applauses)

There's an enormous world market waiting for forestry products if Canada is prepared to meet that demand and while recognizing the primary and constitutional responsibility of the provinces for their respective forest resources, I'm glad to know that the problems of forestry management will be reviewed shortly by all of the eleven senior governments.

We worked out in the field of forestry a working arrangement whereby without interfering with the constitutional jurisdiction a federal department of forestry under the Hon. Hugh John Fleming has been set up where research facilities will be provided in increasing measures.

Another example is in the field of mineral resources. It's in identically the same position as so many other matters. The federal

Department of Mines and Technical Surveys has increased and accelerated its efforts in the field of geological surveys, hydrographic mapping and studies in oceanography.

In the field of agriculture that is shared jointly by the federal and provincial governments, the federal Department of Agriculture has long been in the forefront of basic and applied agricultural research in the fields of plant and animal production. Parliament at the last session passed the Agricultural Rehabilitation and Development Act which will bring new hope as well as new principles of conservation and resource use to the rural areas of this nation and we intend as well in that department to expand agricultural research in the fields of processing marketing and economics.

Then there's the Department of Fisheries. The federal department under Mr. McLean has been of assistance to the fishing industry by providing basic research and other assistance. This has gone on for years and programs are being developed to raise the productivity of fishermen.

Another example is the Department of Northern Affairs and National Resources. The Premier of Quebec was the Minister in that Department. He and I came into the House of Commons together, at the same time, not on the same side, but nonetheless all through the years I was interested in his work in the House of Commons and when he was minister of this department then there was co-operation developed with the provinces emphasis given to the recreation industry in national parks and to the tourist industry generally. In the last three or four years we have provided the Roads to Resources program and forest access roads - programs in which the field of conservation has been aided. And so on I could go - after all we're not water-tight compartments.

The Federal Department of Public Works recognizing the necessity of clean water and the need of meeting that frightful problem of pollution of our streams now gives assistance to municipalities in measures for sewage disposal. We're co-operating with the province in the utilization of river bases such as the Thames River in Western Ontario the South Saskatchewan River irrigation project, the St. John River. Discussions are proceeding with respect to the Columbia River (laughter) and the Red and the Assiniboine Rivers are also being considered and studies are being made on the Nelson River system.

In other words there are fields within which the fullest co-operation is not only necessary but most needful.

Internationally as well in the field of wildlife and migratory birds we have initiated important discussions with the United States Government for after all the wildlife resources of this country while they owe much to private groups that have been working in this field need as well the co-operation of federal and provincial governments.

And in the field of energy and development under the National Energy Board legislation established in 1958, we maintain a national inventory of natural resources which are closely linked with conservation.

And I could go on, building in co-operation a strong and greater Canada indeed the coming session of Parliament, we will have before us the implementation of the legislation passed at the last session to promote national amateur sports in all parts of Canada as part of a human development program based on the recognition of the importance of recreation and physical fitness.

This is something of the picture. I don't want to go on into all the fields. I don't want to tire you. I don't want to put you in the

position that I often speak of - a well known Western politician who spent an hour dealing with the history of mankind then he spent another hour on the present generation then he said "now before I conclude I think I would like to say something in regard to the unborn generation". Somebody in the audience said you'd better hurry up or they'll be here before you finish. (laughter) Now I don't want to put you in that position.

I think you will allow me to say that there are a number of things which we could do within the one united framework by bringing together in co-operation federal and provincial governments, private corporations and groups. I'll sum up in this way: I think that you have proven today that these resource conferences are helpful and beneficial.

To me its a wonderful example of good citizenship to see brought together in this gathering from all parts of Canada seven or eight hundred interested men and women and I think these resource conferences should meet, I think you'll agree not every year but every three or four years to review progress examine current projects and deliberate, develop new ones bring together the representatives of governments at all three levels, in universities, in industries and the other organizations so that you will be keeping pace in your recommendations with the developments that take place in resource conservation and development. At such a conference scientific papers would be presented and discussed and current problems would be fully examined.

I express more than a wish in this connection and to this end the federal government is prepared, subject to the approval of Parliament to underwrite part of the cost of preparing for such periodic conferences.

Secondly the federal government with the co-operation of the provinces is prepared subject to Parliamentary approval to set up and support a national resources council to consist of dominion and provincial representatives and other interested persons, the composition of which is to be agreed upon whose function would be to provide a body concerned with resource conservation, renewal and development in Canada. Not an executive body but a body of recommendations.

This body would publicize conservation means and aspirations and promote interprovincial and regional co-operation.

Three, consideration should be given to the establishment of a national advisory land and water use board.

The federal government is prepared in the national interest to support the establishment of such a board to be specifically charged, subject to the acceptance by provincial governments, with making recommendations for the co-ordination of land and water use on a national scale. Indeed such a body might be in power to carry out the agricultural rehabilitation and development program which was announced recently.

Those are three suggestions that I place before you, (applauses) representative of my belief that what you are doing is good for Canada. I would not have made these suggestions three or four weeks ago. I didn't think when I heard the report being given to me by the Minister, the Chairman and by Mr. Hamilton that it would be possible to bring together as has been convened here, this outstanding representation of men and women from all parts of our country.

This is the beginning as I see it, respecting the constitution to gather Canadians in all parts of this country, and through this means and

in consequence the mobilization of this conference an opportunity to join in further co-operation to build for the future of Canada. In the long term future of this nation this conference I believe is one of the most important that has been convened in the many years that I have been in the House of Commons.

I want to assure you that while your recommendations whatever they may be, will not have and cannot have the force of direction or directed action the federal government will give the most serious consideration to your deliberations and proposals for you indeed are the pioneers in a great undertaking.

It amazes me to find gather together here men and women without any personal gain in mind who in a spirit of a dedication to a greater Canada are prepared to meet and give of their best. I thank you and I wish you well.

"Resources for Tomorrow" Conference

Montreal, October 23, 1961

The Hon. Jean Lesage, Premier of Quebec

For release
after 7:00 P.M.
October 23, 1961

I would like first, in my capacity as Premier, to welcome you most cordially to the Province of Quebec and stress the importance which I attach to the conference which has just begun. I know that much care and time have gone into the preparation of this conference. No doubt that the results of the discussions of such a group of experts will serve to enlighten the actions of the various governments of the country in the development of our renewable assets.

Because of the repercussions which will, no doubt, result from this Conference, it is necessary, I think, for all of you to express your opinions freely, which is exactly what I intend to do myself. Your governments have invited you to take part in these deliberations, but this does not mean that you agree with their policies in any way, or that you are acting as their spokesmen. On the contrary, whether you are from government, industrial, professional or university circles, you will take part in the discussions as individuals - in your personal capacity. In this way, you will have an excellent opportunity to express those thoughts which you have in common and to state your views as well as any new ideas which you may have. The only aim of the Conference on "Resources and our Future" is, in fact, to

analyse the deficiencies which exist in the development of our renewable resources and to give us an idea of the norms required for their proper exploitation while taking into account the various uses of waters, lands, forests, wild life and fish.

In this province, we have taken cognizance of these problems and we know there remains an enormous amount of work to be done to solve them, and to reach the goals we have set for ourselves. We are nevertheless confident that we will achieve these aims because there is evidence that the population of the province realizes not only that the wealth of our soil and of our sub-soil belongs to the people, but that it is the people who are responsible for its development. The enormous potential we enjoy, the people want to use to their own advantage; and through the proper planning of operations, they wish to assure the material progress of the entire Quebec community.

The Government of Quebec knows the attitude of the citizens of this province towards their natural resources, and believes it is its duty to make sure that this attitude is respected.

That is why we are aiming at the present time towards giving the provincial administration the institutional framework which will enable it to carry out the tasks it has undertaken with a view to encouraging the development of Quebec's potential. In all this undertaking, we are guided by a fundamental principle

which several departments, which are concerned with the development of one or another of these resources, have already started to translate into action. This principle -- this rule of action, should I say -- one finds it in the concern for planning, to which we wish to espouse and which we employ ourselves to initiate in all the spheres of our economic life which had until now been abandoned to the arbitrary policies, the *laissez-faire* and the expediency dictated by partisan politics.

In order that, in a country such as ours, planning may be effective, so that it may orientate in the right direction the development and the conversion of those resources which are involved in this planning, a certain number of conditions must be met. We need, for example, a precise knowledge of the facts, we need competent personnel with a mind opened to problems which arise from the interrelation of resources and their uses; it is necessary also that each of the provincial governments give themselves adequate administrative structures. Above all it is necessary -- and this is what I would like to stress -- to take regional differences into consideration in the preparation of the plans to be implemented.

In fact, this is indispensable, because, even if the planning is conceived both at intermediate and higher levels of government, it must be put in concrete form, in final analysis, at the regional level. It is at this level, as you know, that the majority of our resources development and utilization planning problems are encountered.

We live in a vast country with numerous economic regions. Evidently, this does not ease the task of those who believe that serious planning is imperative, especially if the responsibilities in each administrative set-up are not clearly defined at the start.

I believe there exists a reasonably simple way of defining them. My opinion is based on two observations of facts, which anyone is able to make.

The first -- I have just expressed it -- is that planning must take regional differences into account and that for very obvious reasons of efficiency. The second is that our constitution gives jurisdiction over resources, renewable or not, to the provincial administrations.

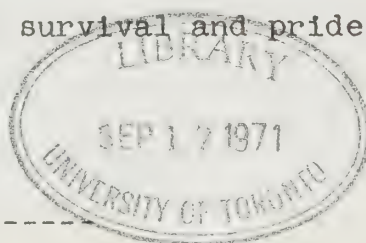
The very large field of activities which economic planning opens, the very nature of the action to be taken, the fact too that we live in a confederation in which we are all interdependent, are all factors which prompt, on the one hand, the federal government to bring its important contribution to such a vital undertaking. But this contribution, in our estimation, should be of a general nature. It may be, for example, based upon the knowledge which our central government has of the requirements of the Canadian situation in the field of international trade, or on the influence which its position enables it to bear on other variables, such as currency and certain types of duties.

On the other hand, the constitution entrusts the provinces with the responsibility for the development of their own territory. The immediate steps of such development and administration of the wealth of their soil are equally within the competence of the provinces. It is the provinces which can control the majority of factors through which planning may be effected and with reasonably good chances of success. The provinces are also in a position to influence the tenor of their industrial progress through their action on the localization of their secondary industry, with the help of a program of communications intended to make basic resources accessible, and through their absolute jurisdiction over municipal frameworks. The provinces can moreover participate directly in investments to develop resources and to plan industrial facilities where economic conditions require it.

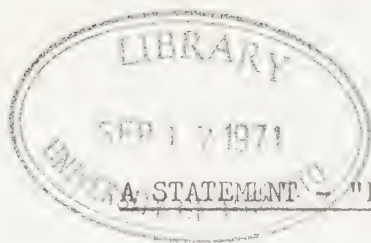
An examination of, and careful reflexion upon, the facts which I have just placed before you, suggest a conclusion which -- I think -- is in full conformity with the spirit of the Canadian constitution. It appears to us that the provinces of this country are, in law and in fact, responsible for their own economic planning, for the economic planning of their natural resources, renewable or not, and for the planning of their secondary industry, that of converting these resources into products.

This responsibility -- in connection with which the federal government naturally can offer a valuable contribution owing to its situation in the Canadian framework -- this responsibility, I repeat, means that the provinces must cooperate constantly with one another, since the task which is henceforth theirs is of such an importance that it would be dangerous to minimize it. Its very complexity should move them to maintain frequent contacts between themselves. On this subject, I would like to underline the very extensive and very useful role which can be played by the permanent interprovincial secretariat of which I had the honor to propose the foundation last year in Ottawa.

In this sphere, as in many others, the Government of Quebec is ready to co-operate, but this co-operation will be, as I have repeated so often since July 1960, in spite of all the publicity that has been given to the voice of a very few -- an active one. The people of Quebec are more than ever aware of their rights, but mark my word -- they no longer wish to live apart. This evening, I have openly expressed our views. If I have done so, I have not done it in a spirit of misplaced provincialism -- because we who live in Quebec feel that in our way of doing things, in our way of living, we can be a positive element and an additional source of survival and pride to the whole of the population of Canada.



October 25 1961



A STATEMENT - "RESOURCES FOR TOMORROW" - DR. B.H. KRISTJANSON

I am pleased to have this opportunity of addressing you briefly this evening not only because I am grateful for the tremendous support you have given to the Conference but more particularly because I feel that further clarification of Conference objectives might be welcomed by you.

I am speaking to you as Secretary to Ministers from the eleven senior governments - probably a unique position. I have no more responsibility to one Minister than another even though I have been located in OTTAWA. This, by the way, is not the easiest type of arrangement - to have 11 bosses representing 11 governments.

In spite of all we could do during the past several months to make clear the objectives and methods of the Conference many people remain confused.

The reason for confusion is inherent in the Conference structure and its terms of reference.

This is a technical conference under the direction of the 11 senior governments. At the very outset all governments agreed that it would not be a negotiating conference. It would not be a decision-taking conference. Therefore, it is a technical, non-negotiating conference.

Herein lies the rub. If we do not take decisions what positive results can be achieved? The answer is that before

any action is taken, clarification of objectives and the range of possible means to reach those objectives is necessary. This is common sense even if it is not headline material. What the Ministers have said is - let us try to get a bead on where we are going and want to go and, at the same time if possible, consider the range of things that could be done to reach our objectives.

The other primary element leading to confusion is that great emphasis has been given to the determination of all governments to achieve tangible results. The Ministers are unanimous in their desire that real progress be made - that the Conference should not be a talkathon.

Now, it so happens that people generally associate forms of organization with results that can be expected. There is a tendency in all of us to try to visualize the kinds of formal organization that may be required to meet this or that objective. And this is all to the good. However, organizational form and forms are a low priority issue in our deliberations in the workshops here this week. It will be helpful to have suggestions but we would be defeated if we proceeded from preconceived conceptions of post-Conference activity in any form.

This is a free and open Conference where each participant is heard, not as a representative of a government or an organization but as a man or woman whose personal views are judged important. The Ministers of the Steering Committee asked me to assemble the best advice possible and, to make that advice as honest and as good as possible, they have asked their registrants to speak their minds.

That should be a banner headline but it is not. But to me this is the most significant characteristic of this Conference. The aim of the Ministers is to get the freest and fullest expression of views possible. They want advice.

What advice are they seeking?

1. What goals of development are best for Canada and best suited to our particular governmental structures. What, - if anything, - do Canadians want regardless of where they reside? For example, do we need a more rapid rate of development of our renewable resources as a whole or of some more than others? Is it possible to define and agree upon a satisfactory rate of growth as a matter of principle?

2. What areas of development appear to suggest the need for active cooperation between the Provincial and Federal governments. In other words, what are the activities that make sense primarily when there is relatively active cooperation between all eleven senior governments?

3. What development projects are most likely to require the exclusive attention of a province or group of provinces?

4. For each of these 3 objectives, what is the range of devices that could be used to best achieve these goals?

Why are the Ministers seeking this advice? - because, to an increasing extent they are becoming responsible for decisions that affect the management of our renewable resources. The legislation they bring forward is very much a part of management decisions in the private sector quite apart from their direct

management of publicly owned resources. That is why they were so anxious to bring governments, industry, universities and private groups together for these discussions.

It is becoming increasingly difficult for the Ministers to decide upon what needs to be done in a country where there is substantial competition between users of resources. There are all sorts of conflicting and complementary uses of our resources and the Ministers are charged with setting the rules of the game. Thus the emphasis on multiple-use.

The problems that are being explored here this week are problems for which there are no easy answers. They demand an examination of conscience as to what we as Canadians really want to achieve, but they demand also an honest effort to examine possibilities for effective action. If we can agree upon this then the vital importance of reaching the public through the press and other media becomes apparent. How this is done depends upon you but I am hopeful that you will find adequate material here this week. I am hopeful too that public information requirements for resource development will be clarified within sessions of the Conference.

Within this view of our objectives, the success of this Conference was assured before the delegates arrived in Montreal. It was assured not because of physical organization and arrangements (although this is important) but because of the extensive studies that have been undertaken, the lead-off papers that have been written and the competence of the people taking part in the workshops. Now we are adding this full week of further study. In other words, the

substance of the Conference has been assured and the Ministers are satisfied that they have a reasonable chance of getting what they started out to get three years ago - guidance .

So far as public information media are concerned the problem will be one of finding the time to probe deeply enough into the wide range of problems under discussion to be able to report effectively on the progress being made. We have tried our best to brief you in advance but I realize that it is difficult to find means of communicating with the public on technical matters. Notwithstanding this may I thank you for the interest you are showing and the great amount of work you have already done. I am prepared to answer any and all questions to the best of my ability.



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RESOURCES FOR TOMORROW CONFERENCE

ADDRESS BY

HON. J.W. SPOONER

MINISTER OF ONTARIO DEPARTMENT
OF LAND & FORESTS

QUEEN ELIZABETH HOTEL

MONTREAL,

OCTOBER 26, 1961



S U M M A R Y

- (1) Multiple resource use concept completely accepted by Ontario.
- (2) Canada and Russia are the two competitors for the great increase now developing in world markets for coniferous forest products. Both can expand but Russia's controlled economy gives it an advantage in such competition. We must lower costs to compete.
- (3) Ontario studying persuasion and compulsion as means of improving forest management on private lands. Choice will be made after analysis of situation here and in other countries.
- (4) Ground rules for maintaining productivity on Crown lands licensed to companies being changed in Ontario.
- (5) The Federal Government should increase basic research in resources.
- (6) As world citizens we, in Canada, must use our surplus resources to aid undeveloped countries.

En abordant dans le sens de la très éloquente bienvenue qui vient de prononcer M. Lévesque, il me fait plaisir, au nom de l'Ontario, de vous dire que je suis très honoré par votre présence à cette initiative conjointe de nos deux provinces.

The Honourable René Lévesque has welcomed you to this joint Quebec-Ontario dinner on behalf of both provinces. I should like to support Mr. Lévesque's welcome on behalf of Ontario and pay tribute to the wit and charm of his phraseology.

We all know that the "Resources for Tomorrow" Conference is one of the very highest importance in the renewable resource field. It is impossible, to single out any particular aspect of it on which I can comment, without the risk of leaving out others of greater importance. However, as I plan to be brief, I must also be selective.

The discussions that I have heard so far suggest that multiple-use concepts are considered by most of us, whether we are technical experts or administrators, to be both important and difficult concepts with which to deal. The determination of the relative importance of different users and uses is pre-occupying many of us, and our friends who have not been able to attend this Conference.

In Ontario we are conscious of the importance of our agricultural, forest and water resources, our wilderness and our recreational areas, and of the dependence of these on each other. I speak not only of government, but of many citizens organizations having special interests in conservation such as . . . to name just a few

The Quetico Foundation - and

The Conservation Council of Ontario

and its many member associations.

By their probings and discussions they keep resource management in the forefront of our thinking.

I am pleased to see that The Agricultural Rehabilitation and Development Act of the Federal Government is framed to give assistance not just in agriculture, but through development of other natural resources that are related to the farm economy. We hope - somewhat impatiently - for great things from this legislation as an opportunity to establish proper relationships between agriculture, forestry, fish and wildlife, water and recreational resources.

In Ontario we find that Crown lands, which are a major concern in my department, are used for mining, for wilderness areas, for hunting and fishing, camping, agriculture, parks, and timber production. Sometimes several of these uses are made of the same area at the same time; elsewhere one use may be more important than others. Where conflicting interests exist, difficult and sometimes unpopular decisions must be made. We have found that wise decisions are made more easily when we have a clear understanding of multiple use and if we have long-term plans.

The district forester makes plans for all areas in his district. Provision is made for the requirements of all interested groups. These plans, many of which look ahead 100 years, are kept up to date, with the help of other departments of government and industries that have an interest in resource management, and recreational groups. I must emphasize, strongly, the importance of long-range planning in resource management.

Earlier this year I had an opportunity to see results of such planning in Europe. I also saw the results of failure to plan. Those of you who have had the same experience, and have seen the unmistakable contrast, must agree with me that we have no choice but to plan for the future. In Europe you will have seen countries that are making intensive forest management plans. Our own foresters will confirm that foresters in Europe are doing excellent work. From my brief observations I feel that most European countries are using their forest more wisely than their other natural resources.

Whatever the reason for this, we can and should profit by their example. In Europe recreational use of resources does not appear to have received enough consideration. Good parks are scarce when one considers the large populations. Wilderness areas exist for special purposes, particularly in Britain. Their programme is excellent. On the other hand, the needs of the people for recreational areas are not being met.

In Canada the need for recreational areas is obvious now. The need is increasing rapidly. But unfortunately, it is not too late to take effective action.

The growing - and sale of wood - is an important concern of our department. Forest industries employ many people. Their products are among our biggest exports and therefore, the state of the industry dependent on them is important. Like many farmers, we know far more about growing and harvesting our crops than we practice. We know, for example, how to increase the yield of wood per acre. We must do more to apply our knowledge.

Economists tell us that the world demand for forest products will double in less than twenty years. We assume, with a confidence, which may by no means be justified, that our sales will double as well.

I must sound a clear warning . . . government and industry must act decisively and with vigour. We must plan for forest production in the right place and at the right price. We must give thought to where we can produce the wood most cheaply; whether by opening up new areas of forest in the far north, or by increasing the growth rate of the forest areas close to our mills and markets. In the one case we must improve transportation; and in the other, we must intensify forest management.

We must remember that we are faced with potential competition from the U.S.S.R., which has resources to grow and harvest more forest products than we can in Canada. Their products will compete directly with the lumber and pulp and paper we sell on world markets.

Canada and the U.S.S.R. are the only countries that can greatly increase their production from temperate coniferous stands. The U.S.S.R. may be able to meet the increase in world demand alone. We must not let them take our share.

What is more, the U.S.S.R. can, if it wishes, sell at prices lower than we, or they, can produce it.

We must grow, harvest and process our wood more efficiently, so that to under-sell Canada will be costly and difficult, even for a totalitarian state. This applies also to fish and fur where we are already smarting from Soviet competition.

As well as vast forests on Crown lands, we have forests on private lands. Most of them are small, but their potential growth and value are much greater than equal areas of Crown forests. Most of them are in the south, where the climate and soil permit a higher rate of growth. And they are close to markets. We have done little to improve the yield from private forests, or to improve the marketing of their products.

Some countries have tried to show land owners that it is in their own interests to manage their woodlots.

Other countries have tried to reach the same end by compulsion. In Ontario we are studying both policies.

Whatever course we take as a result of our analysis, will be a recognition that it is in the interests of the provincial economy to make better use of private woodlands.

Private landowners must see this too, and act to prevent loss of their forest wealth.

Forest industries occupying Crown lands under licence have, of course, been in a position very different from that of private landowners. Their raw material is obtained from the Crown and they must abide by provincial legislation and their agreements with the government. These are the rules of the game. In Ontario the ground rules may well be modified once more to assure that the productivity of our Crown forests will be maintained and improved.

We shall require more silvicultural work by licensees to get regeneration and are even now working on measures to be taken.

It is our policy to move towards more efficient production and marketing from private woodlands and Crown forests, so that industries established to use the raw materials will have their supplies assured, and at the lowest cost.

Much has been said at this Conference about the place of research. Ontario conducts research in agriculture, water, forestry, fish, wildlife and fur bearing animals. It contributes also to research done by the Federal Government in these fields. We have agreements with Canada and have satisfactory working relationships with its proficient and obliging people. Nevertheless, I, for one, am not satisfied. It is in this field that the Government of Canada can make a better contribution. We in the province should continue our work, but it should be mainly operational research for which short-term, clear-cut objectives can be defined. The Federal Government should expand its programme and acquire more rapidly the fundamental knowledge of natural resources,

It is quite proper that we should be concerned about our research and our resource economics, our share of world markets, the best use of our water, and recreational areas. These are components of a healthy economy.

But, ladies and gentlemen, that is not all this Conference is concerned with. I must remind you of something even more important to us, now that the world has become so small. We are citizens not only of our provinces and of our dominion - but of the world !

We can . . . we must - grow food and wood to feed, clothe and shelter the hungry people in other countries. We must provide paper by which the people of the world can be educated and informed. With our resources we can provide means to raise from poverty and illiteracy those who have great need, but cannot raise themselves by their own efforts alone.

It may be that the political crisis of our time will submerge resource problems . . . and resources.

I ask that you who show the way for

"Canada's Resources for Tomorrow"

should consider how our resources may be used to
help the world !

RESOURCES FOR TOMORROW CONFERENCE

OCTOBER 23-28 1961
MONTREAL

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OSBORNE R F
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OZERE S V
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P PAETZ J
Edmonton Alberta
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Pembroke Ont
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PIETTE G
Sillery Que
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POYSER E A
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QE 1158

PIGEON LP
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PREBBLE M L
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PARKER C V
Ottawa Ont
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Ottawa Ont
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PIGOTT A V
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QE 754

PREVOST G
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Winnipeg Man
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PUTNAM R M
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QE 1674

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Guelph Ont
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Distribution (West End Check Room)	MM	184
Journal	Room 378	378
Press	Room 370	370 160 161 162 163 164 165
Printing Unit	Room 369	369
Public Relations	Room 302	302
Registration Enquiry	MM	174
Tourist Information	MM	171
Rapporteurs	Room 350	195





SECRETARIAT

"RESOURCES FOR TOMORROW" CONFERENCE
CONFÉRENCE SUR "LES RESSOURCES ET NOTRE AVENIR"

B. E. C. 100-1000

OTTAWA,

Hardly a day passes but the press, radio and TV mention problems related to the use of renewable resources. Water pollution, development of hydraulic resources, forest management, the use of natural assets for public recreational purposes, all these matters and many others are so closely connected with the public good and attract such a deep interest throughout Canada that it has been considered necessary to study them in their inter-relationships on a national level. Such is the purpose of the "Resources For Tomorrow" Conference convened by the federal government and all provincial governments in Montreal, October 23 to 28, 1961.

Mention of the physical resources of a country brings naturally to mind mineral resources which cannot be renewed as they are developed. Other natural assets, however, available as part of nature's bounty, may be put to profitable use without diminution. Water as an essential element of any life; land as the source of food and basis of our existence; forests which provide wood products and environment; fisheries and wildlife providing revenue and amenities - all are examples of renewable natural resources.

All these resources should be dealt with as a precious heritage. The wisest way to perpetuate them is to manage their development for the benefit of the present generation while ensuring that these assets remain undiminished for future generations. This approach to resource management problems is implied in the title "Resources For Tomorrow" given to the national conference in Montreal in October which plans to study the problems and issues implicit in improving our use of renewable resources.

HISTORY

The Conference project originated in a declaration of Prime Minister Diefenbaker at the beginning of 1958. This proposal was taken up at the end of that year by Hon. Mr. Alvin Hamilton, then Minister of Northern Affairs and National Resources. He submitted the idea of a national conference on resources development for the consideration of the provincial governments. All provinces responded favourably to this project.

Initial steps to prepare for such a conference were taken at that time. A Steering Committee, consisting of a resources department minister from each of the eleven governments, undertook to establish the framework of an organization in this regard and particularly to see to the creation of a conference secretariat as well as to define the purposes, limits and themes of the Conference itself.

The Chairman of the Steering Committee is Hon. Walter Dinsdale, Minister of Northern Affairs and National Resources and the following are members of the committee: Hon. J.W. Spooner, Minister of Lands and Forests, Province of Ontario, Hon. René Lévesque, Minister of Natural Resources, Province of Quebec, Hon. E.D. Haliburton, Minister of Agriculture, Lands and Forests, Province of Nova Scotia, Hon. H. Graham



Crocker, Minister of Lands and Mines, Province of New Brunswick, Hon. Gurney Evans, Minister of Industry and Commerce, Province of Manitoba, Hon. Ray Williston, Minister of Lands and Forests, Province of British Columbia, Hon. Leo F. Rossiter, Minister of Natural Resources, Province of Prince Edward Island, Hon. A.G. Kuziak, Minister of Natural Resources, Province of Saskatchewan, Hon. Norman Willmore, Minister of Lands and Forests, Province of Alberta and Hon. W.J. Keough, Minister of Mines and Resources, Province of Newfoundland.

At all stages, the Steering Committee and Secretariat consulted experts in renewable resources across Canada. Their advice and services have proved to be invaluable in the preparations for the Conference and in defining resource use problems. As a result it was decided to have specialists write background papers in the various fields of renewable resources and eighty of these papers have been published this summer in two volumes available from the Queen's Printer to serve as a basis for the discussion of resource problems.

Thus it may well be said that for the first time in Canada's history the eleven governments of Confederation are jointly and equally sponsoring a Conference at which distinguished experts in the various renewable resource fields are to consider development problems and principles and to express their views on management methods.

Nature of Conference

In scope and novelty the "Resources For Tomorrow" Conference is unique in Canada's history. In contrast to previous conferences which were organized in Canada in 1906 and 1954 under the sponsorship of professional associations, the Montreal Conference will be an inter-governmental undertaking. However, it will not be in any way similar to the traditional federal-provincial type of conference at which representatives of the various governments submit proposals leading to formal agreements.

This national resources conference is not designed for such bargaining negotiations since the power to decide on definite lines of government policy is not inherent in the terms of reference. Essentially this is to be a working conference which, on invitation of the eleven governments, will be attended by some 600 experts specially qualified by training and experience, to discuss problems of renewable resources.

Each of the eleven governments will invite an appropriate quota of participants to attend the Conference. These will come from governmental, professional, academic and scientific organizations as well as from private companies. But the participants will come to the Conference as individuals in order to exchange views, pool their knowledge, cope with difficulties and deficiencies in the management of our

resources and to suggest standards for long-term development programs for the common welfare.

Program

The Conference program will cover various fields of renewable resources such as water, forestry, fisheries, wildlife, agriculture and land use, in addition to the use of resources for recreation and utilizing the principles of regional development. This latter approach includes water and air pollution as well as urban growth. All these subjects will be considered with special regard for the inter-relationship of resources and the aim of achieving multiple use.

Conflicts of use

What types of conflicts in resource use arise from lack of co-ordinated policies? For example, waterways may become cess-pools from the in-flow of untreated sewage and waste. Under such circumstances drinking water becomes very costly and the supply unreliable. Attractive bodies of water no longer serve as a suitable habitat for wildlife and fish but become rather carriers of pollutants endangering vegetation, fish and human life. The construction of dams at power sites may interfere with the water supply for agriculture, fisheries and recreation. Thoughtless deforestation of slopes of natural drainage systems may have adverse effects on water flow and vegetation. Conflicts also arise in the use of land for agricultural purposes and urban growth. Lumber production may have destructive effects on forest wildlife. Private ownership of waterfront properties clashes all too often with the need for access by the public to recreational areas.

Then there are the problems involved in the use of insect sprays. Insecticides, it has been demonstrated, kill birds in the orchards and destroy fish in nearby streams. Here the question is how best to obtain maximum protection for fruit trees while safeguarding wildlife.

There are pressing problems as well in the conflict of interest between farmers and hunters in order to preserve the values represented by each of these classes. How often such problems raise jurisdictional conflicts! In brief, then, the Conference will investigate ways and means of reconciling various resource uses to the maximum advantage of all interests concerned.

Conference participants will consider the planning of regional development, concentrating upon river basin areas in terms of the rational and harmonious use of all its renewable resources. This use begins with the stream flow which a watershed can provide for people and industries, for irrigation and power production as well as for public recreational purposes.

Conference organization

There will be opening statements of the background of the Conference, its expectations, and a review of the relationships between our renewable resources in Canada to the rate and pattern of national economic growth.

This stage of the Conference proceedings will be followed by a study of the problems and inter-relationships of each resource sector - water, land, fisheries, wildlife and forests as well as of recreation and regional development.

At this stage there will be fifteen workshop sessions in which particular emphasis will be given to the dimensions of these problems; what is being done about them and to identify obstacles impeding further progress.

The next step of the Conference will be to investigate the nature of obstacles posed by the application to resource development of research, administration, jurisdiction, extension-information activities and management.

The next main step will involve studies of the regional planning approach to renewable resource development. Four major types of regions in Canada will be considered by nine workshops. Then there will be a series of workshops in which participants will work out possible methods for improved resource management. Special attention will be given, both in workshops and plenary sessions, to capital requirement aspects and employment effects of resource development.

Both plenary sessions and workshops will be organized under chairmen and co-chairmen assisted by speakers and discussants. Each workshop group will consist of 30-40 participants whose discussions and conclusions will be condensed into brief reports by two rapporteurs. The official languages of the Conference will be English and French. Simultaneous translation of discussions will be arranged for plenary sessions.

Members of press, radio and television services will be welcome to the Conference activities and all reports of discussions will be made available to them.

The aim and expectation of the Conference is to define problems of resource development in proper perspective, having in mind the entire range of resource sectors and the relative significance of each. Conference purposes will include the formulation of criteria to serve as action guidelines to more comprehensive and effective resource development programs by governments acting together or separately; also to give increasing attention to the importance of renewable resources in relation to Canada's total economic growth and in the hope that industry and governments will benefit from the Conference to plan over-all, co-ordinated resource development for the benefit of the nation as a whole.

IMPROVING INDUSTRIAL CLIMATE THROUGH FINANCIAL ASSISTANCE

By D.H.F. Black
Deputy Minister
Department of Industry and Information
Saskatchewan

Remarks Delivered During a Panel Discussion on "Capital Requirements for Resources Development" at the "Resources for Tomorrow Conference", Montreal, P.Q., on October 27, 1961.

As a result of our federal system of government in Canada, with mineral and natural resources, agriculture and property and civil rights falling under provincial jurisdiction, the responsibility for the promotion of resources and industrial development has devolved upon, or at least has been assumed by, the ten provinces. Had the provinces not been given this responsibility by law, they would undoubtedly have assumed it in fact, as the developmental needs of each area could not have been adequately served from a central and, in the case of most provinces, a distant point. It would also have been administratively impossible for the Federal Government to carry out as a massive a job of promotion as is being carried out by the ten provinces nor could it have done it on a completely equitable basis.

Although the Federal Government does not carry the primary responsibility for industrial development in Canada, its role is a very important one, as it is responsible for creating a national climate favourable for investment in industry and resources and through the Dominion Bureau of Statistics and other agencies, of providing much of the data which forms the raw material for the province's promotional activities.

However, the principal task of isolating ideas for new industrial possibilities of preparing market, and in many cases, feasibility reports on these possibilities and of



seeking sponsors at home or abroad (which in provincial terms means anywhere outside of a particular province) is carried out by each province.

Between the provinces there exists the greatest of competition and in many cases three provinces may be approaching the same prospect at the same time. Without doubt this competition has resulted in much greater total development in Canada than would have existed without it.

At the same time, and despite this competition, there exists between the promotional teams of each province a spirit of mutual helpfulness and cooperation with the sharing of program methods and activities and with a keen interest in the problems and progress of sister provinces.

In addition to their promotional functions, the provinces carry a senior responsibility for creating a favourable climate for investment within their bodies. This may take many forms, including the provision of technical and other assistance to present industry, the sponsoring of productivity programs, the preparation of market studies, the development of proper government purchasing policies, assistance in the sale of local products, both within the province and for export, and the provision of traffic management information and advice. The provinces also seek to improve all forms of communication and transportation and in many cases through provincial co-operation can provide low industrial rates for power and gas services. The provincial agencies also provide advice to cities for the improvement of their industrial facilities and assist them in their local promotional programs.

At the risk of appearing somewhat parochial, I would like to mention briefly a program which Saskatchewan pioneered

among the provinces in order to provide necessary financial support for prospective development in existing industry. This program was designed to improve the climate for the development of manufacturing and resource industries.

I refer to the establishment by Statute of the industrial development fund in 1947. This fund, which was largely patterned after the Federal Industrial Development Bank, was initially designed to provide financial assistance to small and medium-sized plants. For this type of assistance, there was a real need within the province as many prospective industries were either too small to obtain necessary funds from investment houses or were too large, or in some cases too speculative, to obtain funds from the chartered banks. The services of the fund were also made available to existing industry wishing to expand its productive facilities. Loans from the fund were made on the security of fixed assets and normally amounted to 50% of the value of land, buildings and equipment. Funds were not provided for working capital requirements which could generally be secured from the chartered banks. Loans were repayable within a period of five years and interest rates ranged from five to seven per cent, depending on the market conditions for provincial borrowings.

As industrial development in Saskatchewan did not assume any significant proportions until the arrival of the oil boom in the early fifties, little use of the facilities of the fund was made until that time. Interestingly enough, the first loan made by the fund was in the resource sector to support the establishment of the province's first plywood plant. Since its inception in 1947 until the end of 1960, the fund had made

a total of 79 loans covering 37 industrial categories, with products as diverse as poultry evisceration and ammunition. It is interesting to note that over two-thirds of the plants were new to the province and that a high proportion of these would not have been established in the province had the facilities of the fund not been available.

In 1955 the Government decided to embark upon a new method of attracting industries through the guarantee of bonds and other securities and for greater amounts than would normally be made available by the fund. As a direct result of this program, the government was able to assist in the establishment of the province's first cement plant through extending a guarantee of some \$5.5 million. For years the province had been suffering from an inadequate supply of cement and often had to rely upon United States and European sources at almost prohibitive laid down costs. In supporting this industry, the government undertook a considerable degree of risk, but felt that such a risk was necessary in order to assist the construction industry and to provide the basic raw materials for concrete product industries. As consideration for the guarantee services, the province was paid an annual fee of two per cent on the declining balance and in the first year we received some \$110,000 without the necessity of expending actual capital. The plant was an immediate success and the government's contingent liability was no longer necessary after the third year of operation.

Following the successful establishment of a pipe plant in 1957 through assistance provided by the fund, the government decided the following year to provide financial support to a proposed mill for the production of ingot, skelp plate and

structural materials. As in the case of the cement plant, financial assistance was provided in the form of guarantees against the security of fixed assets. The plant, which produced its first ingot in 1960, ran into serious production problems during a lengthy period of run-in, but is now producing materials to API specifications at approximately standard rates of yield.

In supporting this venture, the government assumed very senior risks and, of course, some degree of risk will continue until the plant has been in operation for several years, has fully standardized its production procedures and has achieved a stable procedure in the western market.

The Government considered that this level of risk was necessary if we were to witness the establishment in the province of the largest steel and rolling mill facilities west of Sault St. Marie, the provision of a base for satellite industries in secondary steel production, and to assist a provincial community in its attempts to become the centre of the steel industry in the prairie basin.

To date the majority of financial assistance that has been provided by the fund has been available to industry outside the field of renewable resources but this form of assistance is equally available for the development of our forest resources. Being a land-locked province distant from world markets, our efforts to date have not been successful in attracting a pulp and paper operation in the province. However, with the rapid development of paper production in the mid-western states, we feel that the time is not far distant when a Saskatchewan

operation will become feasible. To attract such an industry, the province will leave no stone unturned to make the establishment of such a plant attractive to investment capital. The spirit of this approach lies behind the activities of all Canadian provinces in their programs to accelerate industrial development.

CAPITAL REQUIREMENTS
OF
WATER RESOURCE DEVELOPMENT
IN CANADA

by
John Davis
Director of Research and Planning
B.C. Electric Company

Remarks delivered during a Panel Discussion on
"Capital Requirements for Resource Development"
at the "Resources for Tomorrow" Conference

Montreal, P.Q.

October 27th, 1961



CAPITAL REQUIREMENTS OF WATER RESOURCE DEVELOPMENT IN CANADA

Mr. Chairman and Gentlemen:

I have often been introduced as an economist. This I sometimes regard as a backhanded compliment for two reasons. One is that engineers and administrators frequently make bad jokes about economists. The other is that far too many economists take refuge in broad generalizations and refuse to come out into the open when real cuts in expenditure or economies are involved

Unpalatable decisions often have to be made and adhered to. So let me make my own position quite clear. I believe that we cannot achieve a high rate of economic growth without making cuts here and there. The nation's health, like that of a family or group of families, involves a certain amount of surgery. Infusions of new capital will help us to carry on; but they are not, and cannot be, the answer in every case. Tighter budgets and better management techniques are what is needed and these, in turn, may limit our capital requirements for water resource development in Canada.

Everyone that I talk to seems to be convinced that Resources are a Good Thing. Many are also of the opinion that we must have more investment capital. Give us the tools, they seem to be saying, and we will finish the job. Often these man-made tools - though they demand their own wage - are very efficient. But I get the impression that we have now become so impressed by the machine that we welcome capital investment for capital investments' sake.

But this doesn't mean that we must harness all of the renewable resources in sight. Some are exploitable now. Others may have to wait; and still others may always be passed over in favour of better investment opportunities. We, in other words, must be selective in our approach. Often this will mean less employment, on the job, for the most valuable resource is the one whose development calls for the least amount of effort on our part. Yet it is also good economics for it frees more capital and more labour to serve other needs in the community.

Here, then is my theme. The more a resource costs to develop, the more marginal it becomes. The higher its capital cost, the greater the likelihood of something else taking its place. We cannot go on pumping money into resource development projects without attracting some attention. And this attention may have some unfavourable results. There are other fields of endeavour where the outlays on new plant and equipment are less onerous and where the output per unit of capital is showing a much more rapid increase.

We in Canada are inclined to think of ourselves as proprietors of a vast storehouse of hydro-electric energy. Water power has been, and in some parts of the country continues to be, our principal source of electricity.

But hydro is no longer the unique resource that it once was. Other means have been devised for the generation of electric power on a larger scale. They are virtually inexhaustible and the source materials like oil, natural gas and the nuclear fuels, are much more transportable. This being the case we are forced back to a consideration of price. Here again we seem to be losing ground. Fuel-fired stations are becoming more competitive everywhere. Canada is no exception. In six out of our ten Canadian provinces thermal plants have an edge already. Large installations are even being built in British Columbia, Manitoba and Quebec. This alone should be sufficient evidence that the day of water power's undoubted supremacy is over. From now on it will have to compete with alternatives, some of which may be harnessed more cheaply and more efficiently in other countries.

Generally speaking our costs are low. They are low because we have had numerous hydro sites which were easy to develop. The rainfall, and the snowfall, collected on plateaus in great natural reservoirs for the storage of water. Steadily flowing rivers brought this potential energy to the doorstep of many a Canadian community. There it plunged down, often over escarpments whose contours did away with the need to build expensive dams and canals.

Transmission line investments were also held to a minimum. These, gentlemen, were real resources ! They were valuable because they could be put to work with a minimum of effort on our part.

- They a) didn't require the investment of a great deal of man-made capital, and
- b) could be developed much more cheaply than other means of producing electric power.

Now, let us look at the situation today. As we press back into the wilderness the outlays associated with transmission are bound to increase. The construction of high dams and the clearing of man-made reservoirs are also expensive propositions. Frequently they call for investments running into hundreds of million of dollars. One of the sobering thoughts which I must leave with you is that the same capacity, in the form of thermal plants, can be built for half or even a third as much.

The amount of our capital requirements is one facet of the problem. Interest rates are another. Obviously the economics of "capital intensive" * developments like the generation and transmission of hydro-

* The investment per production worker in the Canadian water power industry is now about \$200,000. In all public utilities it is \$30,000; mining \$15,000; manufacturing \$13,000; trade \$11,000; construction \$7,000 and services \$4,000. In manufacturing the highest figures are oil refining \$120,000 and chemicals \$30,000.

electric power is improved when interest rates are low and demands **more** revenue support when interest rates are high. The reverse is true of thermal plants whose fixed charges constitute a much smaller proportion of total annual expenses, with fuel making up the rest. To put it another way . . . high interest rates have an inhibiting effect on renewable resource based activities like the production of hydro-electric power. And, because the "cost of money" may continue to be high due to rising wage rates and other inflationary factors we must expect increasing competition from other and less capital intensive sources of supply.

Uncertainty is an enemy of large resource development projects. What happens if you get well launched into one of these vast capital dependent schemes and the demand for power begins to level off ? You have nothing but a liability on your hands until your project is complete. Meanwhile interest, depreciation and other carrying charges will be eating their heads off. Far better, under these conditions, to wait a bit; to build a less expensive thermal plants, and to leave the really big risks to posterity. Let future generations pay for the benefits which they receive and let us divert more of our savings into enterprises which are sure to pay out in the short run. Many a planner, faced with these arguments, will be inclined to play it safe. Either he will build a series of smaller projects or he will avoid the water resource field altogether.

Then there is the related problem of technological change. Break-throughs on the metallurgical front and remarkable improvements in design have meant that the cost of building steam plants has remained virtually unchanged since World War I ... combustion efficiencies, meanwhile have gone up and most station operating expenses have gone down. The net result is that the unit price of thermal power is about the same as it was 30 or 40 years ago. In the United States it has actually dropped by about 10% since the late 1940's. Here in Canada, the price of electricity has gone up by at least 30%; and in Sweden, a country which is also very dependent on hydro power, it has risen by more than 60% ! (See several Charts attached)

I do not mean to imply that technology has been all on the side of thermal power. Certain capital cost reducing devices like the heavy earth and rock moving equipment, fast-setting cements, new tunnelling techniques and extra high voltage transmission have come to the aid of our water resource development programmes. Nevertheless, our clear cut advantage based on hydro power is slipping away. This makes it all the more important that we should look at our highest capital cost projects with a jaundiced eye. Our objective, I suggest is to spend less, rather than more, on developments of this kind.

The challenge which is shaping up is how to make the fullest possible use of the capital funds involved. Output must be increased and, to use the language of the system planner, the benefit - cost ratio of each project or programme should not be allowed to fall too far. Analyzing the situation in this way, we find that the advantage which hydro systems had over steam plants back in the early 1920's was up around 3 to 1. By 1940 it was down around 2 to 1. Now, with hydro costs rising and the alternatives to water resource development becoming increasingly competitive we have to look hard to find circumstances where the benefit - cost ratio is more than 1 to 1. The situation, in other words, is deteriorating - no longer can we take net benefits attributable to water resource development for granted. More sophisticated techniques like benefit-cost analysis are called for and these must be applied in a hard headed fashion if we are to do the most economic thing under the circumstances.

The magnitude of this turn-about in our affairs has yet to be fully understood. For some time now we Canadians have been investing upwards of \$500 million a year in the development of the nation's water resources. Hydro-electric power, alone, has been absorbing a quarter of all of the new money going into resource development in this country. Narrowing the field down to the so-called "renewable" resources raises the proportion to between 30 and 40 per cent. A corollary of this is that our capital requirements will be reduced if hydro-electric power gives way to other sources of energy. Increased construction in the allied fields of navigation, flood control, irrigation and pollution abatement may partially offset this decline; yet they in total cannot make up for the slump in hydro expenditures which may be in the offing.

You know, and I know, that we can rescue some of these marginal programmes by "integrating" them with other public works - locks and canals for shipping, flood damage prevention, irrigation schemes and the like. Possibly the overall results can be defended on these grounds, but not always. In most parts of Canada we still have too few industries and too few people to give these "other values" real weight. Either they are too small relative to power or they may themselves be uneconomic in the sense that their prospective benefits are likely to be less than their costs. Under these circumstances the entire programme should remain on the shelf. Any overall river basin planning worthy of the name would indicate that this be so.

As one who was until recently, employed by a private investor-owned utility, I see yet another facet to this problem. The benefit side of the ledger can be increased by introducing such values as improvements in navigation and flood control. But these considerations in turn may lead to - or even necessitate - greater participation on the part of governments and government-owned agencies. The field, as far as private enterprise is concerned, is being narrowed down. Single purpose projects may no longer

be economic. Multi-purpose projects may have to take their place with all the social and institutional effects which centralized planning entails. The source of much of our capital, therefore, will be changing. More will come directly from the pockets of the taxpayer and less will be sought on the open market through the sale of common and preferred stock. Financially speaking, our overall structure for water resource development will become more rigid. Furthermore, it will become more rigid at a time when some of our economic advantages will be passing into the hands of others and when the need for stern checks and balances is more necessary than ever before.

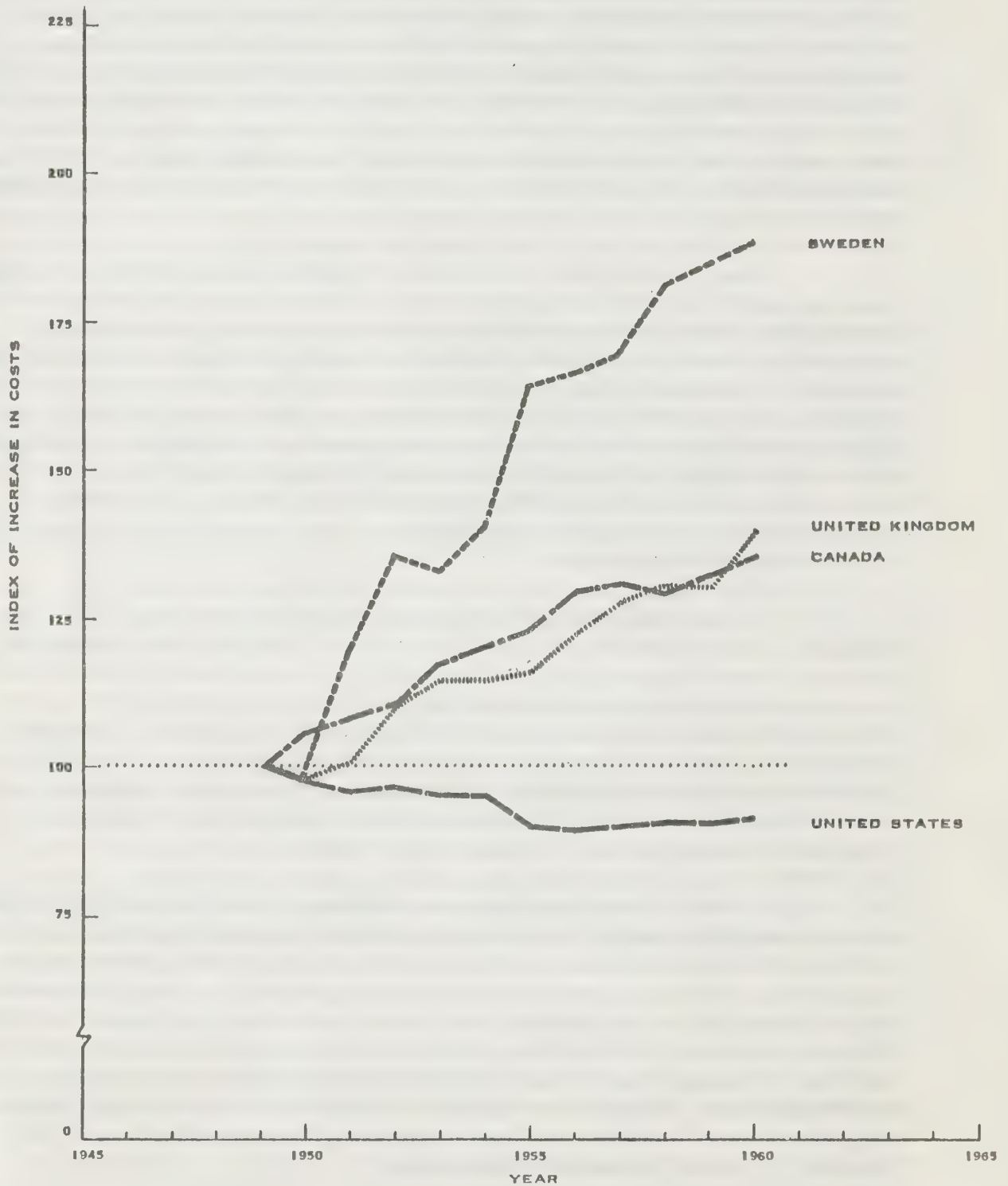
Our subject this afternoon is "Capital Requirements for Resource Development". I, obviously, have been concentrating on the water sector. But much of what I have had to say can be applied to the development of many of our other resources. We have a wealth of natural capital and we need some man-made capital to put it to work. The more man-made capital we need, per unit of output, the poorer our natural resources must be. There comes a time therefore, when the investment of larger amounts of man-made capital isn't worth the candle. It simply doesn't pay. There are other, better and more profitable ways of doing things. You, who are responsible for planning the development of our renewable resources will do well to bear this in mind.

The lesson which we must learn bears repeating here. Our economy must be flexible in order to survive. If it is going to continue to develop it must be prepared for change. A resource which is a first class resource today may be a second class resource tomorrow. It may, in other words, lose its value as a "strategic area" of growth. It behooves us therefore, to be on the lookout for other opportunities. The main requirement is that they be dynamic in the sense that they can show a high ratio of benefits to costs. These are the projects which should attract large and growing amounts of man-made capital.

Finally, we have been asked to say a word about "The Creation of a Climate Favourable to the Investment in Renewable Resources". Nothing, I submit, will be more persuasive than success. Success can be ensured by good management and good management, in turn, implies the careful selection of our lowest cost resource development opportunities. If we organize our efforts along these lines we should be able to raise all the funds we need. Our credit rating should go up and interest rates should go down. Technical competence and political stability are two of the pillars upon which we can build. A resource development policy based on sound economic reasoning is another.

GROWTH IN AVERAGE COST OF POWER 1949 - 1960

(INDEX: BASE, 1949 = 100)



REFERENCE - ANNUAL REPORTS: SWEDISH ELECTRICAL AUTHORITY; CENTRAL ELECTRIC AUTHORITY OF THE U.K.; 'EDISON ELECTRIC INSTITUTE', AND D.B.S. BULLETINS



G.E. Pushie
Director-general
Department of Economic Development
Government of Newfoundland

Remarks delivered during a panel discussion on "Capital Requirements for Resource Development" "Resources for Tomorrow" Conference, Montreal, October 27, 1961.

I wonder if we don't make a fetish of using big words and woolly phrases to say simple things. It seems to me that you create a climate for investment of development capital into resource development by providing those investors with the opportunity to make a profit and to continue to make a profit.

There is no great dark secret in all of this. Investors in resource development look for two simple things: fair treatment, and stability of tenure.

If we accept the idea that private enterprise is going to provide the capital, you have to give it this overriding profit assurance. At least we in Newfoundland look to private enterprise to provide this kind of capital. Among other reasons, we have too many demands on our provincial financing - for roads, schools, hospitals, health and welfare services - to have much fund savings available for resources development.

In resource development we have followed a program of big concessions to major companies. We think it produces results, both in getting major corporations or groups of corporations to do development work in the real sense of the word, and in the fields of renewable and non-renewable resources. Pre-development surveys under this type of arrangement can cost many millions of dollars. Put simply, while we as a government have done hydro surveys, timber surveys, mining and drilling programs, we would eminently prefer to have interests other than

the provincial government make this kind of expenditure. If that sounds like a boost for good old private enterprize in a Canadian economy, let me make the point that it is good old private enterprize which has been in the main responsible for resources development in our Province in all fields, from hydro utilities to paper mills.

The provincial government has done some pump priming in fisheries and other industries; has guaranteed bonds for resource railway construction until private enterprize moved in and assumed the obligation and to get mines underway. All of this is completely overshadowed by the magnitude of private capital invested in resource development in the Province.

We have almost as a routine business on major capital investment in resource based industries (and other industries) dropped any tax on development capital coming in. There is no sales tax on major capital investment or capital expansion - the tax being paid merely on capital replacements or operations. To us it is very simple: if you want development capital to come in, you do not tax its entry. We exempt certain development functions from such things as gasoline tax or fuel tax.

To ensure that local communities can not load the full burden of municipal needs onto industry - particularly in single industry areas - we limit the municipal tax take from the industry to 40% of the budget raised by the local government.

We are probably at an earlier stage of resource development than many parts of Canada, and we are, as a result, a low royalty, low stumpage (or no stumpage in several cases) province.

What we say to development capital: "you are as welcome as the flowers in May". This welcome extends not only to Canadian capital but to American capital and European capital.

Far and away the bulk of the development capital in our province has been American. Let me make one point: as a young and growing province we have never found enough Canadian capital to do the job. We would welcome ten or a hundred times the present American investment (some \$400,000,000. U.S.) currently being spent on resource development in our province.

We have Canadian, British, Italian, German, Belgian, etc., capital in resource development. We have found that even for the bond money for major resource development the source is principally the U.S. Until such time as Canadian investors and bond houses are prepared to provide major development financing, this is likely to continue to be the pattern if development is going to continue.

We go as far as we can provincially to create a climate for development capital but, let's face it, most of the inducement possibilities rest within the control of the central government.

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Department of Economic Development
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Remarks prepared for panel discussion on
"Income and Employment Effects of Renewable
Resource Development."

Resources For Tomorrow Conference, Montreal,
Oct. 27, 1961.

After listening to Dr. Dymond's hard facts, there should be little doubt that the acid test of this conference will be its effectiveness in getting the federal government in particular to look at renewable resources as something more than money in the bank against the needs of the far future. Dr. Dymond's analysis suggests very strongly, indeed, the fact that new thinking about our resource industries is only a suitable starting point for action on half a hundred problems, human as well as economic, facing the Canadian nation.

The government and the public have always taken great comfort in the thought that the land and water resources of this country insure it against economic catastrophe over the long run. Those of you who have read Professor Kuiper's remarkable paper on the Nelson River Basin must feel that Canada will be one of the few countries to successfully survive this world's population explosion--thanks to a wealth of resources. He envisages, as you may remember, Prairie Provinces transformed into a well-watered Garden of Eden comfortably able to support 100 million people.

It is possible. It is comforting. It is also a very long way away.

Standing between the present employment of resources and the effectively, perfectly utilized resources of tomorrow, however, are a number of urgent realities.

Some may be only short-run considerations. But they all are facts of life and they do suggest that any policies in the resource field are bound to fail unless they are considered in relation to the progress of the whole economy, in relation to its efficiency, in relation to its over-all employment and income needs.

First. When talking about renewable resource industries and policies to enlarge their contribution to employment and income, we must recognize that we are discussing declining industries. The decline, granted, is not in all its aspects absolute. It is relative. But it is dramatic.

The Gordon Commission, for example, estimated that by 1980, the proportion of the Canadian work force in resource industries including agriculture, might be only 10% to 12% as against the 35% to 37% or so in the late 1920s. The big growth is in trade, finance, government and services. The proportion of the work force in those areas will double from 1929's 28% to 55% by 1980.

Much the same trend is also taking place in resource industry product. Here, though, the relative decline vis-a-vis other industries, is entirely due to the shrinking contribution of agriculture to gross domestic production. There will still be sizeable gains in water and forest industries.

This does not deny the fact that our farms, forests, fisheries and hydro power provide the physical underpinning for our prosperity. But it does raise a few very important questions.

Are government policies which place emphasis on the maximum development of resource industries in the best national interest? Are we justified any longer in equating high production in the resource industries with high employment and high income in the economy as a whole? If employment is declining relatively in the resource industries, is the answer still-bigger subsidies and aids for farmers and fishermen?

Second. At the moment, we live in a world of glut. It is just realistic to admit that only war, pestilence or drought would strain the production capacity of our wheat farms and our pulp and paper forests.

The traditional idea that we must habor our resources and practice strict conservation lest supplies run out seems curiously out-dated when you look at the competitive nature of today's international commodity markets.

Growth in the underdeveloped countries, which are now entering world markets, or meeting more of their own needs, is largely based on developing natural resources--our specialty, so far. Growth in the industrially developed countries is now being hinged more firmly to developing diversified and more self-sufficient economies by, for example, building newsprint mills to use local, fast-growing trees--again our specialty, so far.

So--Just how much room is there in Canada for policies that try to encourage new resource development or better resource maintenance? Should resource policies--if they are to help maximize national employment and income--educate the public away from its historic fascination with resources, renewable and otherwise?

Third, and this grows out of the second point, we are, more and more, living in a world where the problems of selling take precedence over the problems of producing. The sophisticated economies of the world, among which Canada numbers, are caught up in a fundamental shift away from worries about sources of supply and towards a search for market security. Thanks to technological developments, markets, not materials--and capital, not manpower--are increasingly the main preoccupations of commodity boards and business corporations.

This is already quite evident, as Professor Anthony Scott has pointed out. Oil companies, for example, are seeking outlets by moving more aggressively into marketing and by doing research on competing forms of fuels. Wood product firms are buying into retail companies. Fishermen are buying fish processing and distribution plants. By the same token, it has been a long time since a publisher bought a newsprint firm to assure his supplies--and soon, perhaps, newsprint companies will start buying newspapers to guarantee their newsprint sales.

In the light of this, can the Canadian economy afford resource policies that fail to place product research ahead of land and water conservation? Can it afford, for example, to regulate forestry cutting operations, yet neglect to encourage technological improvement within the processing sector of the industry? Emphasis on research and technological advance should certainly be among the ways of winning the markets that will guarantee employment and income within the resource industries.

Fourth of the realities which make very difficult, indeed, the framing of policies designed to maintain employment and income within the resource industries is evident in Dr. Dymond's paper. These are the human problems.

For example. The spectacular decline in farm employment because of better machinery, better methods, has produced remarkable gains in productivity--but at very large social cost. Surely, too many young people have been thrown out on the urban labor market undereducated and undercapitalized for the demands that the economy makes upon them.

Mr. Miller, director of research for this conference makes the point:

He says: "Policy must have as its goal, not primarily maintenance of supply (or its corollaries, minimization of waste or more efficient techniques of utilization) but more importantly, maintenance of welfare for those most directly affected by the use of resources."

Given the employment and income trends outlined in our speaker's survey, is there much point in resource policy that is not all-of-a-piece with federal welfare policy, and with provincial policies of education? If, one way or another, the wastage of natural resources is minimized, if more efficient use is made of these resources, can we avoid, in the process, creating new wastage of human resources? Unless there are some very basic changes in national economic policies to accompany changes in renewable resource policies, what governments achieve by way of tidying up land and water may be lost though bigger unemployment--unemployment characterized by a low level of skills.

My fifth and final point is this. What the Federal and provincial governments can do in the short run and directly to enhance employment and income in the resource industries appears to be very small, indeed. In the recent past, anyway, government has only been able to soften the unemployment effects of agricultural mechanization and, by such devices as subsidies and unemployment insurance, help keep uneconomic fisheries going a little longer.

Government activities and expenditures have been and probably will be centred, in water resources, recreation areas and wildlife preservation--what have been called the "amenity resources" which provide only a small part of resource industry employment.

What happens in the rest and the more important sector of the renewable resource industries is, let it be noted, primarily up to self-employed farmers, self-employed fishermen, small farm or fish factories, pulp and paper companies, saw-mills--in short, private business.

In all of these privately-owned industries there has been, over recent years, marked progress in conservation or in the more effective utilization of natural resources. Government rules or financial inducements did, no doubt, speed the process. But, basically, better care of resources has come about because it was the profitable thing to do.

Are the resource policies of the near future likely to encourage the private sector of the resource industries to create high level employment, high level income conditions?

It is early, certainly, to judge Ottawa's newly announced National Resources Council. But since it was obviously planned without the benefit of this conference's deliberations, a comment now could hardly be considered lese majesté.

The Council appears to be restricted in its activities to the care and nature of the government-controlled "amenity resources". It is hard to detect in its frame of reference any large or specific obligation to promote resource conservation or income- and employment-generating development in the private sector.

Its objectives are constructive and useful--as far as they go. Most people like to live in a tidy house with a tidy garden and find it to their economic advantage to do so.

But is this an adequate approach to the problem of income and employment in that sector of the renewable resource industries which provides jobs and pay checks for about one-fifth of the entire labor force?

The supply and demand situation and the employment and income realities in the renewable resource industries suggest that government policies must go far beyond straight and simple conservation because it's a "good" thing, and far beyond maintenance of industrial raw materials because there might, in some far day, be a shortage.

Resource policy is plainly only a part of the whole problem of running an economy to maximize or at least maintain employment and income--and it can't be looked upon as an area for isolated activity.

Consider how interwoven is the well-being of the goods-producing resource industries with general government policy. Take, for example, the present government drive towards Canadianization of foreign-controlled industry. It's aim is to give Canadians bigger participation in this country's industries and to slow the torrent of U.S. capital pouring in. This is probably good, if we feel it is necessary to be our own masters, and there are many responsible people who believe that it is. But if this policy, as it develops, in any way discourages U.S. pulp and paper companies here--who control 43% of the industry-- it is going to be hard on employment and income in this sector of the economy.

Or look at the total impact of taxation on industry costs and industry product prices. What happens in this area will certainly shape business decisions which, in turn, will determine employment and income prospects in the resource-related companies. Canada's pulp and paper industry--which produces Canada's biggest export item--is already a high-cost industry. If its costs and prices are pushed upwards because of bigger tax loads, no array

of conservation rules will save jobs and incomes in that industry.

Or consider the effect of government combines policies on the pulp and paper industry. If these laws become more stringent, if they insist upon equating bigness with badness and ignore entirely the need in Canada for every economy of scale that can be achieved, government policy in this area may well work against industry efficiency, against more effective marketing, against employment.

The employment and income problems of the resource industries, in other words, seem to reach far beyond conservation of supplies. It's likely that in the short run anyway, given a world surfeit of most resource materials, the maximization of employment and income in these industries will depend to a greater-than-usual extent on the growth of over-all Canadian prosperity and industrial efficiency necessary to bring that growth about.

The intelligent and wise use of our resources to provide jobs is very much up to private enterprise. But, let's face it, creating the climate suitable for efficient expansion in the private sector is very much up to general government policies.

These are matters of political economy and, perhaps, as the saying goes, we need more economics and less politics in their solution.



PAPER DELIVERED BY MR. J.A. ROBERTS
DEPUTY MINISTER OF TRADE AND COMMERCE
TO THE
PANEL ON "INCOME AND EMPLOYMENT EFFECTS OF A RENEWABLE RESOURCE DEVELOPMENT"
RESOURCES FOR TOMORROW CONFERENCE, MONTREAL,
FRIDAY, OCTOBER 27th, 1961.

The position of the renewable resource industries in the changing pattern of employment in Canada has been amply described by Mr. Dymond. In primary operations, the picture in recent years has been one of actual diminution in the amount of manpower employed while in the related processing activities employment has been approximately stable. Employment in the renewable resource area as a whole has constituted a distinctly declining proportion of Canada's total labour force. Incumbent upon this situation is the problem of retraining and redirecting human resources, which has been dealt with in the main paper.

It should be recognized, nevertheless, that the capacity of the renewable resource industries to absorb manpower is not by itself an adequate criterion either of the general health of these industries or of their overall contribution to economic development. In any progressive society, as incomes grow, food and forest products are among those which attract a declining proportion of the consumer dollar. For this reason alone one would expect these industries to require a declining proportion of the total productive resources available. Moreover, in recent years technological advance has been unusually rapid in this area, permitting more output with less labour. This tendency reduces the manpower requirements of an industry while enhancing its competitive strength and wealth-creating capacity. This process is generally in line with national economic objectives.

The key significance of renewable resource industries to the Canadian economy cannot perhaps be fully appreciated without reference to their historical role in the development of the country. Over the years the opening up of new land, forest and water resources, along with mineral wealth, has to a large degree spearheaded the

general growth of the economy. Even prior to the advent of settlement Canada was known throughout the world as a prolific source of fish and furs. From these early beginnings it was primarily the pull of virgin lands, forests and other resources that sparked successive waves of settlement which gave definite shape to the Canadian nation. Resource extraction led naturally to processing, while the course of settlement and further population growth gradually gave rise to the superstructure of secondary and service industries which exist today. In terms of employment and income creation, these secondary activities now greatly outweigh the originating "hard core" primary industries. Renewable resource activities and related processing industries now account for approximately one-fifth of Canada's employed labour force and generate a somewhat smaller proportion of total income.

Apart from their historical "lead" role, resource industries possess another attribute which gives them a significance far out of proportion to their actual size. I refer here to the predominance of resource commodities in our export trade. Resource-based products including minerals and bulk chemicals make up nearly nine-tenths of Canada's exports, while renewable resource products alone account for more than one-half of the same total. In fact, four commodities within this group, namely newsprint, wheat, pulp and lumber brought \$1.9 billion in foreign sales last year, more than one-third of Canada's total exports. Through this trade Canada is able to achieve the high degree of specialization which underlies the general productiveness of the economy and the high material well-being which Canadians enjoy. In other words, it is primarily these industries which pay our way in the world.

Foreign trade has a vital role for many nations. Yet no country of the world has achieved, primarily through trade, comparable levels of productiveness and living standards. In terms of the wealth-creating effects of its export trade and the scope of its export

capabilities Canada is probably unique among the countries of the world. This particular attribute we owe to our resource industries.

If resources play such a basic role in our economy and if this is best illustrated by their importance in export trade, what does this suggest for the future development of resources? Quite clearly it indicates the necessity of maintaining maximum strength and viability in world markets. The continuing growth of production and incomes throughout the world means that the demand for resource products is expanding. However, these larger markets are not easy markets. The growth in demand has been paralleled by the creation of new production capabilities in other parts of the world, much of this is in direct competition with Canada's export industries. Competitive pressure has increased in recent years and it is not likely to subside. If Canada is to maintain her traditionally strong position in these markets she will be required to exercise ingenuity and initiative on several fronts. At both the international conference table and that of the company boardroom, sound judgment and hard bargaining, backed by intensive study, will be necessary to assure the best possible access to world markets. In the marketing sphere, a broader knowledge of the whole market environment and the position of Canadian industries within that environment must be developed and continuously updated. Likewise, relentless effort will have to be given to the areas of product development and productive efficiency.

As a means to improving our competitive strength, I would like to emphasize in particular the place of applied industrial research. This subject has already had a central role in the deliberations of this Conference. From the layman's point of view, I would like to emphasize the importance of more research in achieving our objectives in world trade. Research has always been important but its application on an even broader basis is becoming increasingly necessary. But in addition to the pure research and basic research carried on by universities, governments and other institutions, there is a great

need for much more applied industrial research, if our products are to compete successfully in foreign or even in our domestic markets. Over the years on a number of occasions Canadian scientists have uncovered bits of knowledge with apparently useful industrial applications only to see them ignored by Canadian industry and later developed successfully by industries in other countries. Although we wish to share our knowledge with the world we should see to it that we make full use of that which originates in our own laboratories.

"Extract from Report of the President in the Annual Report of the
National Research Council 1959-60"

By: Dr. E.W.R. Steacie

In view of the highly competitive position in world trade today and the new threat of Soviet industries to our export markets, it is important that Canadian industry be backed by an industrial research effort of as great a magnitude as the scientific resources of the country can support. In the past, Canadian industry has been made up mainly of branch factories dominated by parent companies which performed their research for them, or of widely scattered small industries lacking capacity for research and often lacking the technical competence to apply the results of research. Consequently, the effort put into industrial research in Canada has been small compared to that in the major industrialized countries. Recently there has been an encouraging growth in industrial research and increased realization of the importance of research for the health of Canadian industry. The importance placed on science and technology in the Soviet Union, and the successful effort of the European countries to increase the productivity of their industries by the rapid application of technical advances leave Canada no choice but to give considerable emphasis to technical progress.

At N.R.C. long-range applied research makes up a large portion of the programme. The N.R.C. also maintains a Technical Information Service which supplies technical information to industry, but this

must be supplemented with increased research facilities and with technical proficiency in industry itself.

One thing is certain: Canadian industries cannot afford to be less effectively served by research than their competitors in other countries.

On the other hand there is ample evidence in the story of Canada's renewable resource industries to encourage more widespread attention to industrial research. Particularly renowned has been the development and distribution of the various new strains of wheat and other grains, which have been the key to world markets for Western Canadian agriculture. Despite the problems and misgivings of recent years, it seems that there is still a real demand for wheat in the world. Unfortunately, although the researchers have developed early-maturing and disease resistant grains, they have not come up with a strain that will grow without any rain at all.

A number of developments in the fisheries sector including the introduction of modern fishing equipment, new processing and freezing plants and a vastly different approach to the consumer, have brought a marked change to the organization of the fishing industry particularly in Eastern Canada. At the same time it substantially strengthened a difficult marketing position.

The application of improved techniques in water power generation and distribution has had a major impact in many sectors of the Canadian economy. Its importance in the development of newsprint capacity and the refining of metals in Canada, for example, is well recognized. The content of water power in many of Canada's major exports is very high. Without the comparatively high efficiencies created by applying the best methods to the natural water resources, these industries and their products would not exist in their present forms.

In the forest industries continual industrial research has been paramount in retaining Canada's place in international markets. One aspect has been the use of a wider range of species and size of trees and also more of each tree, leaving less residue in the forest and at the mills. Improved equipment of all types in the woods and in processing has reduced the labour required and improved the product. A number of new products have been developed to meet new demands and to meet the challenge of other industries and other countries.

This emphasis on industrial technical research is not meant to detract in the least from the continuing need for and value of fundamental or basic research. Nor is it intended to overlook the attention given in the workshops of this Conference to investigations into better methods of management and administration at all levels and to improved coordination among the various users of resources and to the means of disseminating knowledge both for the specialist and for the public. Indeed with our dependence on trade we must couple with industrial research, the requirement in many sectors of both government and industry for extension of our studies of the present and future market situation and also for further investigation of the important factors of production other than the resources themselves. Mr. Dymond has referred to gaps in our knowledge of the human element and I understand that another group is today discussing the question of capital requirements.

Industrial research may have less impact in some resource sectors but any reference to coordination and administrative problems bring to the fore questions of the multiple uses of water and land and the whole field of wildlife and wilderness conservation and the related industries of recreation and tourism. Canada's potential in these directions both for Canadians at home and visitors from abroad is only becoming apparent. Aside from the intrinsic values to be conserved, we have here one of our real "growth industries" - a real "sleeper."

Given proper attention on all fronts, there is every reason to believe that the renewable resource industries will make a major contribution toward the achievement of higher levels of productive activity in the Canadian economy. The two-thirds increase in the volume of Canada's export of forest products to the United States in the five years following World War II illustrates the kind of impact which can flow from all-out expansion in a major industrial area of the world. Overseas industrial countries are now in a similar period of growth and the implications for some of Canada's resource products could be impressive. There are, of course, other possibilities which are quite unpredictable. Who for example could have foreseen this year's grain movement to the Pacific region.

Regardless of the particular trend of foreign market developments, the role of renewable resource industries in Canada's future development will probably remain a highly specialized one. Even under the most favourable circumstances it is unlikely that these industries will, themselves, have a major part to play in the absorption of additional manpower. In fact, the continuation in these industries of a rapid rate of productivity improvement may be a pre-requisite of success in capturing additional foreign markets. In this event substantially higher production and exports may be realized but with little direct use of additional manpower. Nevertheless, the indirect contribution to Canada's employment problem could be substantial. Higher exports could add to income levels and at the same time strengthen Canada's external financial position, both of which are essential pre-requisites to a healthy and expanding economy. By bolstering up the foundations of the economy, strong resource industries will facilitate the creation of new job opportunities throughout the whole structure of Canadian industry.



Income and Employment Effects of
Renewable Resource Development

Address by:

W.R. DYMOND

Assistant Deputy Minister
Canada Department of Labour

Resources For Tomorrow Conference, Montreal,
October 27, 1961.

1. Employment and Income in Renewable Resource Industries

(a) Introduction:

I must say at the outset that this topic is a rather broad one, encompassing the five renewable resources of agriculture, forestry, fisheries, wildlife, water, and also recreational activities. Our present store of empirical economic data leaves a good deal to be desired as far as the treatment of all of these resources is concerned. We have, however, reasonably accurate data on employment and income in four of them, that is, on agriculture, forestry, fisheries and to some extent on wildlife. Even for these industries, national statistics could provide more coverage than at present, as I will point out later. Water resources and recreational activities, while they are economically important and no doubt are becoming relatively more important in comparison with other industries, do not provide mainstay employment as directly at present as the four industries which we will now review.

(b) The Long-Term Relative Decline in Employment in
Agriculture, Forestry, Fishing and Trapping Industries:

Since the turn of the 20th century, the economic dependence on the primary resources of agriculture, forestry, fishing and trapping has greatly diminished. In 1901, the primary sector of these four industries provided the main occupations for three-quarters of a million persons. This was 43 per cent of the total of 1.8 million people who were gainfully



occupied in Canada (Table 1 and Chart I). This employment, I might emphasize, was provided by the primary sector of these industries alone. If we added to this 43 per cent the employment provided in secondary manufacturing of these primary products, the total influence on employment would have been much greater¹.

By 1951, the percentage of all gainfully occupied people in Canada employed in primary agriculture, forestry, fishing and trapping had dropped to 18 per cent of the total. While there had been an absolute increase from three-quarters of a million to about 1 million people in these four primary industries, the total labour force in Canada had almost tripled, and there were 5.2 million people gainfully occupied in Canada in 1951.

In the Atlantic and Prairie regions, particularly the latter, these primary industries were still very important in terms of employment in 1951. In the three Prairie provinces 36 per cent of the total who were gainfully occupied stated their main occupation to be farming, forestry, fishing ^{or} ~~and~~ trapping.

In both Ontario and British Columbia, on the other hand, these four primary industries accounted for only 12 per cent of the total number of gainfully occupied people. Fifty years earlier, 42 per cent of the total in Ontario had been occupied in the same primary industries.

¹ Unfortunately the annual Census of Manufacturers was not instituted until 1917. Thus comparable data for secondary industries is not available.

(c) Employment in Primary and Secondary Agricultural, Forestry, Fishing and Trapping Industries from 1949 to 1959:

If we now concentrate on the trends in employment over the past decade, it is evident that the decline in the primary sector of these industries is now continuing both in absolute numbers, and relatively, in relation to total employment in all industries.

Between 1949 and 1959, employment in Canada in the primary sector of agriculture, fishing and trapping showed a very noticeable decline. Although employment in primary forestry was the exception, showing quite an increase over this period, the overall decline in the four industries was from 1.2 million to .8 million or by 32 per cent in this one decade. (See Tables 2 and 3). During this interval, employment in the secondary sector of these industries¹ showed a small increase, but the sizable decline in the primary industries more than offset this gain. The net effect was that between 1949 and 1959 total employment in both the primary and secondary sectors of these four resource industries dropped from 35 per cent of total employment in Canada to 23 per cent (Table 2 and Chart II).

The relative loss in employment in the primary and secondary sectors of these four resource industries between 1949 and 1959 was practically all accounted for by a gain in employment in tertiary industries, particularly, in the service, trade and finance industries (Table 4). It was not a case of other commodity producing industries, such as mining, offering increased employment, as there was no gain in these industries during the decade.

¹ That is, those employed directly in manufacturing products originating from Canadian farms, forests, fishing and trapping industries.

It should also be noted that the total employment provided by the primary and secondary sectors of these four resource industries is actually greater than that shown by data in tables presented here. In the manufacturing industries it is impossible to allocate the origin of employment for a number of goods that have a mixed product content. In 1959, manufactured goods of mixed origin provided employment for about 140,000 employees in Canada. Assuming that the origin of goods from agriculture, forestry, fishing and trapping accounted for about 40 per cent¹ of the employment provided by mixed origin goods, this would add about 50,000 to 60,000 employees to the total shown in the secondary sector of these industries in 1959.

Within the five regions in Canada, the primary and secondary sectors of the four resource industries still provided 33 per cent of total employment in the Prairies in 1959, 26 per cent of the total in the Atlantic provinces and 23 per cent in Quebec and British Columbia. In Ontario a smaller proportion, 18 per cent of total employment, was provided by these same industries (Table 2 and Chart II.)

¹ This was the percentage of all manufacturing employment directly engaged in manufacturing products from these resource industries in 1959.

In the decade between 1949 and 1959, there was very little change in the distribution of employment between regions in these resource industries. In both 1949 and 1959 the Prairie region accounted for the highest proportion of employment in the primary sector, but, because of the overwhelming edge on manufacturing in the food products and wood using industries, Quebec and Ontario had slightly higher numbers of persons employed in the combined total for both the primary and secondary sectors. In 1959, combined primary and secondary employment in agriculture, forestry, fishing and trapping industries in Ontario accounted for 30 per cent of the Canadian total, in Quebec the comparable figure was 27 per cent, in the Prairie region 25 per cent, and the Atlantic and British Columbia regions each accounted for about 9 per cent of the total (Table 2(a)).

(d) Income from Renewable Resource Production:

While the National Accounts of Canada do not provide a geographical breakdown for industrial production, the Annual Survey of Production carried out by the Dominion Bureau of Statistics provides net value of production data both on an industry and provincial basis¹. Through these estimates it is possible to trace the economic importance of both the primary and secondary sectors of agriculture, forestry, fishing and trapping in Canada, and within the five regions being analysed in this paper.

¹ Value of commodity production estimates by province exclude the non-commodity producing industries and are not conceptually comparable to National Accounts estimates.

Comparing these four industries with one another in Canada as a whole, agriculture and forestry, of course, dwarf the other two industries in economic importance. In 1959, for example, the primary and secondary sectors of agriculture accounted for 70 per cent of the total employment and 56 per cent of the net value of production in these industries. Forestry accounted for 28 per cent of total employment and 41 per cent of the net value of production in the four industries.

Net value of production¹ estimates show that in 1949, primary and secondary production in the above four industries accounted for 45 per cent of total commodity production in Canada. In 1959, the comparable value of these industries amounted to 35 per cent of the total (Table 5 and Chart III). This again, indicates a relative decline in these industries versus other industries in Canada and again the decline was greater in the primary sector. In 1949, the net value of products in the primary sector of agriculture, forestry, fishing and trapping accounted for 48 per cent of the total of \$4.4 billion produced in both the primary and secondary sectors. By 1959, however, the primary sector only accounted for 38 per cent of the total production in the four industries of \$6.6 billion.

¹ Equals total value of output, less indirect taxes, cost of materials, fuel, purchased electricity and processed supplies consumed in the production process.

In the five Canadian regions, the economic importance of these resource industries varies quite a bit. In British Columbia the primary and secondary sectors of these industries still accounted for 50 per cent of total net value of commodity production in that area in 1959. In the Prairie region the comparable figure was 42 per cent, and in the Atlantic region it was 41 per cent. In Ontario the value of production in these industries, although higher in absolute terms than in any other region, accounted for only 28 per cent of the total value of all commodity production in the province in 1959.

As with employment, there was very little shift in the regional distribution of product values in these resource industries. In both 1949 and 1959, production in these four industries in Ontario accounted for about 42 per cent of the Canadian total (Table 5(a)). Quebec accounted for about 26 per cent, the Prairie region 17 per cent, British Columbia 10 per cent and the Atlantic region about 5 per cent.

In addition to the value of production originating from primary and secondary sectors of agriculture, forestry, fishing and trapping industries, one should add the value contributed by the electric power industry which in Canada is predominately from water and therefore also a renewable resource product. In 1959, the net value of production in the electric power industry in Canada was \$748 million or about 4 per cent of total commodity production in net value terms. This, plus the 35 per cent

of total production accounted for by the other four resource industries pushes the production figure for renewable resources well up towards 40 per cent of the total.

As I have already mentioned in connection with employment, an additional part of total commodity production originates from these renewable resource industries but loses its identity in the manufacturing of goods of mixed origin content. It is possible that the four resources of agriculture, forestry, fishing and trapping contribute an additional 2 per cent or so of total commodity production which cannot be definitely tagged as originating from these industries.

A rough estimate of the contribution of these renewable resources with the exception of recreation, to gross domestic product in Canada for 1959 is made in the following summary:

	(millions of dollars)
Primary agriculture.....	1,674
Primary forestry.....	362
Primary fishing and trapping.....	105
Secondary agriculture, forestry, fishing and trapping.....	3,290 ¹
Electric power, gas, and water utilities.....	1,001
Sub-total	6,432
Total gross domestic product.....	31,293 ²
Per cent of G.D.P. contributed by renewable resources.....	21%

¹ This estimate was obtained by applying the percentage of net value of production in manufacturing originating from agriculture, forestry, fishing and trapping products to the total gross domestic product for all manufacturing.

² DBS National Accounts, 1960.

(e) Data for Water Resources and Recreation:

With the exception of information on value of production for the electric power industry, already mentioned above, there is very little economic data available on employment and income originating from water resources and recreation.

As far as tourism is concerned, although statistics showed that foreign visitors spent \$420 million in Canada in 1960¹, it has been estimated that Canadians themselves are the most important tourist customers and that they comprise between 80 and 93 per cent of the travelling public on highways in Canada². Consequently, there is a need for a national survey of domestic travel to determine expenditures on recreation by our own nationals.

Other sources of data are the statistics on the numbers of provincial and federal government employees engaged in recreational and cultural service functions³. In May 1961, there were about 2,300 persons employed by provincial and federal governments in Canada to administer governmental services in this area.

Apart from the above and a recording of the numbers of fishing and hunting licences, we have virtually no national statistics on the overall effects on employment and income of recreation in Canada.

¹ DBS, *Travel Between Canada and Other Countries*, 1960.

² Crombie, H.L. *Tourism in Relation to Natural Resources*, *Resources for Tomorrow Papers*, Northern Affairs and National Resources, July 1961, p. 977

³ See, *Provincial Government Employment and Federal Government Employment*, published quarterly and monthly by the Dominion Bureau of Statistics.

2. Characteristics of Labour in Areas Affected by Longer-Term Declines in Employment

(a) The Low Skill Level of People in Surplus Manpower Areas:

In a country in which the movement out of primary to secondary and tertiary industries has been taking place quickly, there is a need for considerable adjustment in the levels of education and skill of the labour force. In the past 60 years in Canada, employment in the primary renewable resource industries has declined from over 40 per cent of total employment in all industries to about 15 per cent¹.

In addition to the adjustments required in education and skill levels, a shift away from dependence on primary industries, which offer employment mainly to men, necessitates an adjustment in the male-female ratio in the labour force and, in actual fact, renders it more difficult for men to find employment than was the case formerly.

Perhaps the most important thing to bear in mind, however, is that the structural shifts in employment between industries is occurring so rapidly that within one generation, individuals in the labour force must adjust to meet quite different skill and educational requirements.

Another important adjustment is required when people in primary industries such as farming, move from self-employed or unpaid employment to paid jobs.

¹ In the primary sector of agriculture, forestry, fishing and trapping, employment was only 13 per cent of the total in Canada in 1960.

As far as shifts from primary to secondary industrial employment are concerned, these also very often require movements of people from one area to another, ordinarily, from rural to urban areas. Because these adjustments in skill, education and physical mobility do not occur automatically to meet shifts in industrial employment, we have problems of surplus manpower at present in some areas in Canada.

A recent study¹ found that unskilled persons constituted a high proportion of the total number of persons registering for jobs at National Employment Service offices in labour surplus areas. This study classified 18 National Employment Labour Market Areas as having a labour surplus over the period 1953 to 1959. Seven of these areas were located in the Atlantic provinces, 8 in Quebec, 2 in Ontario and 1 in British Columbia. Unskilled labour registration accounted for 21 ~~percent~~ to 45 per cent of the total monthly registrations of males within these 18 surplus labour areas.

In 9 labour market areas in the Maritimes and Quebec, the study concluded that the dependence on a relatively few primary industries that are seasonal in nature accounted for the major part of unemployment in these areas.

This study also revealed that unskilled labour registration constituted a higher proportion of total monthly registrations in metropolitan and industrial labour surplus areas than in agricultural and

¹ Judek, S. Canada's Persistent Unemployment Problem, Labour Surplus Market Areas, Proceedings of the Special Committee of the Senate of Canada on Manpower and Employment, February 1961.

smaller labour market areas¹. This finding seems logical enough because people working in areas that are more dependent on primary industries often do not need the higher skills that are required in industrial and metropolitan areas. When people attempt to move from primary industry jobs to those requiring more skill, however, they frequently become unemployed.

(b) Education:

Census of Canada data show conclusively that residents of farm and rural areas have not achieved the educational levels obtained by those living in urban areas². The Census of the labour force in 1951 showed that the percentage of males with 9 years or more of schooling was lower in the agricultural, forestry, fishing and trapping industries than in all other industries³. In the fishing and trapping industries only 17 per cent of male workers aged 14 and over had received 9 years or more of schooling. In the forestry industry the corresponding proportion of males was 20 per cent, and in the farm labour force it was 24 per cent. In the service industries, on the other hand, 65 per cent of the males had the equivalent education. Even in the construction industry 36 per cent of the men had received 9 years or more of schooling.

¹ NES Labour Market areas with a labour force of 10,000 to 25,000 are called minor labour market areas by the Department of Labour.

² Census of Canada, 1951, Vol. 1, Table 59.

³ Census of Canada, 1951, Vol. IV, Table 19.

In household sample surveys made by Federal and Provincial Departments of Labour in two labour surplus areas in the Maritime provinces in 1960¹, it was found in one area that, among men experiencing unemployment, only 16 per cent of those aged 14 and over had completed grade 9 or better in school. Ten per cent of these men had no formal education at all and an additional 33 per cent had gone only as far as grade 5.

(c) Seasonality of Resource Industries in These Areas:

Seasonal variations in industrial employment should be considered separately from the longer-term annual trends in resource industries. Yet, indirectly, seasonality in these industries is probably a contributing factor to the secular downward trend in employment, because of the less attractive income prospects in industries of a highly seasonal nature.

Comparisons of seasonal amplitudes of employment in Canadian industries show that the industries that give rise to the largest seasonal variations in employment are logging, fishing, agriculture and construction². Seasonality is also induced in those industries that process the products or supply these seasonal industries with goods and services. This amplifying effect of seasonality results in large seasonal variations in employment in regions which are more dependent on primary resource industries.

¹ Joint Federal-Provincial Surveys of Seasonal Unemployment in New Brunswick and Nova Scotia, 1960. The report on this survey has not yet been published.

² Seasonal Unemployment in Canada, The Labour Gazette, Department of Labour, Ottawa, Queen's Printer, 1960.

In one of the labour surplus areas included in the household survey in the Maritimes, 45 per cent of the men interviewed had experienced unemployment for one month or more over a two-year period. About 70 per cent of these men gave their main occupations as fishermen, carpenters, loggers, truck drivers and unskilled labourers.

As far as seasonality in Canada as a whole is concerned, our research work indicates that, during the years 1958 to 1960, the construction industry, the group of primary industries¹ and transportation accounted for about 70 per cent of the total number of seasonally unemployed people in Canada².

¹ Including mining, but seasonal variation in employment in this industry is very small.

² Seasonal Unemployment, ^{in Canada} Department of Labour, Ottawa, 1960.

3. Union Organization, Wages and Working Conditions in Resource Industries.

There is only sufficient time in this paper to raise a few points about the extent of union organization, wages and working conditions in these resource industries, as indications of the way in which workers in these industries are organized and the nature of the economic position in which they find themselves. For these four primary resource industries less than 10 % of the workers are union members. Union organization is confined to the forestry and fishing industries where some 60,000 workers are union members, a little more than one-half of the total work force in these industries.

In the manufacturing industries which process these resource products, some industries are very highly organized. This is particularly true of the pulp and paper industry in which approximately 90 % of the employees are now covered by collective bargaining agreements. Available data indicate that in the food, textile and the printing and publishing industries more than one-half of all employees are covered by collective agreements. Altogether, over 200,000 workers in the secondary sector of the four resource industries are members of unions.

Wages and working conditions in the secondary manufacturing sector dependent on the resource industries are generally comparable with those in other parts of manufacturing. When one looks at these four resource industries in the primary sector, however, one finds a situation that contrasts greatly with the manufacturing sector of our economy, so far as paid workers are concerned. Wages and working conditions in these industries vary a good deal, not only from industry to industry, but also from region to region. As a generalization, however, it can be said that wages are lower, working conditions are less progressive, and hours of work are much longer than in the manufacturing part of our economy.

The basic factor responsible for these conditions in the four resource industries is that, an average output per worker is much lower than in the secondary sector of the economy. A comparison of gross domestic product originating from primary agriculture, forestry, fishing and trapping with gross product in other industries indicates that output per worker in these primary industries is still considerably lower than in other industries. In 1960 the gross domestic product per worker in the country as a whole was \$5,400. For the four resource industries covered, the figure was \$2,800, or not much more than 50 % of the average for all industries. For primary agriculture the figure was \$2,600 and for forestry \$3,700.

This relatively low real product per worker in these industries is a severely limiting context for the past and future development of human resources associated with these industries.

4. Implications of Renewable Resource Development

(a) For Income Growth

It is probable that the relative decline in the contribution of renewable resource industries to national income will continue. As far as these primary resource industries are concerned, together they accounted for about 13 % of gross domestic product in Canada from 1930 to 1950 and then suddenly declined to 7 % of gross domestic product in 1960, partly because of the mushroom growth of the trade and service sectors of the Canadian economy. This gives some conception of the rapid shifts occurring in the industrial pattern of the economy since World War II. The proportionate contribution of these industries to our national product is not likely to change too much in the future. Primary and secondary production from renewable resource industries as a whole may continue to supply something in the order of 15 % to 20 % of the gross domestic product for some years to come.

(b) For Employment and the More Effective Utilization of Manpower

Again, in the case of employment, it is likely that these four primary resource industries will provide a smaller proportion of total employment in future, since the farm labour force which is the largest of these industries has already declined very sharply in the last two decades. This will probably result in a very considerable slowing down in the overall face of employment decline in these industries.

As far as recreation and wildlife activities are concerned, there is little doubt that they will provide more employment and income as living standards and leisure time increase in Canada.

The manufacturing industries based on resource industries will probably show some further increase in employment as the growing population in Canada requires more food and clothing and more wood and paper products.

To provide for a more effective utilization of manpower in Canada and particularly in this group of industries, it will be necessary to do everything possible to make use of the surplus labour available in those areas associated with these industries. We will need to develop, more consciously, ways and means of facilitating the adjustment required on the part of many people who have not been able to adapt their education and skills to the rapid changes in our requirements for manpower. As in the past, that part of the Canadian population most dependent on primary industries will probably continue to have a higher birth rate than other population groups. This underlines the point that human resources are a renewable resource. Therefore, a continued shift of surplus labour from our primary industries will be required for a more effective utilization of manpower in the Canadian economy.

(c) Training of Manpower Resources

Since people in the lowest education and skill levels are the ones most likely to encounter difficulty in finding and holding jobs, education and training are the essential remedial measures required for the most effective use of manpower.

It is paradoxical that Canada has many job openings in the midst of unemployment, because many people do not have the necessary training to equip themselves for these openings.

Canada is now expanding greatly its resources devoted to education and technical and vocational training. This is necessary because of the rapidly expanding requirements of our economy for skilled, technical and professional workers. The needs of these resource industries for more highly skilled and specialized workers will grow as well if they are to increase their productivity as a means of improving the economic status of their workers. This means, in turn, that improved educational and training facilities must be developed in those rural and fringe areas in which the workers and their families in these industries live.

(d) The Need for More Research on Resource Industry

Along with the need for training and education there is a greater need for research on manpower and other economic and social requirements in the changing complex of industry today. I might mention that we have a great deal more manpower research to do in Canada, as underlined by the Report of the Senate Manpower Committee. Our national household surveys of the labour force were started only in 1946, at least twenty years after the enlargement of records in such economic areas as primary and manufacturing industry production and national income accounting. With this late start, there are numerous gaps in manpower statistics, and emerging requirements that have not yet been met.

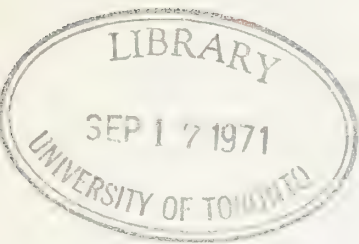
Due to the exceptionally high seasonality in employment in primary industries there is a very great need for statistical data on the continuity of employment. We also need more information on the emerging skills required in primary industry. In farming, for example, there is as yet no cataloguing of the types of skill that workers in the industry possess. Yet, it is clear that farming operations are becoming more and more technical today. As a matter of fact, present statistics do not even provide information as to the number of people who are employed the year-round in farming.

Such gaps in data on manpower, of course, are a result of the preoccupation on the needs for research on the demand or industry side of the labour market. For too long the economic concern in Canada has been towards the encouragement and development of industries with the misconception that the labour force would automatically adjust to new employment needs.



"RENEWABLE RESOURCES AND CANADA'S FUTURE"

Remarks for a panel discussion, Resources for
Tomorrow Conference, Montreal, October 28, 1961
by T. K. Shoyama



Mr. Chairman, Ladies and Gentlemen:

Surely no participant in the whole Conference has had a less enviable task than I. Not only must I pick up the thread of our discussion after the diversion of the "coffee break"; not only are we running almost one hour late; not only am I expected to say something new, or at least to distill from the oceans of words washing over us some few, clear drops of truth; but I also follow Dean Bladen, whose remarks this morning have clearly shown that despite his severe criticism of our educational system - of which he is himself a product - he himself is no "contented cow".

However, as the Chairman will recall, when our panel first met in his office early last Monday, both Mr. Stephens and I viewed our assignment for this morning with all that confident serenity and clear-eyed vision that is the hallmark of our prairie heritage. We had had an opportunity to reflect at some length on the kind letter of invitation from the Minister, as Chairman of the Conference Steering Committee. We had been assured of assistance and received appropriate instructions from the Secretariat. We had even skimmed through the 1,060 pages of the background papers, and prepared notes on what might be delivered this morning by way of a harmonious finale to the Conference Symphony.

Unfortunately, like most other clear-eyed Lochinvars from the west, we obviously had under-estimated the capricious, involuted nature of the challenge facing us in this eastern bastion. For the past five days, Mr. Stephens and I have been winding our separate ways through the Labyrinth of the Conference discussions. Whenever our paths have crossed, we have tried politely to exchange notes and observations - the gist of which has simply been to discard the previous day's work. But increasingly our conversation has been reduced to trading silent, furtive glances at the hurried, hunted look in each other's eye, the wilt in our collars, and the sag in our shoulders.

I mention this, partly by way of an apology for the inadequacy of my remarks this morning. But even more, I think it reflects the real, overall impact of the Conference better than any analytical summary or evaluation I might try to make. You will remember that Keats, on first looking into Chapman's Homer, visualized "stout Cortez" on his first glimpses of the boundless Pacific, "silent, upon a peak, in Darien". Now I am far from stout, but am certainly tempted to be silent, especially since some of the currents, and counter-currents, in the corridors and hotel rooms of the Conference since Monday night commend just this posture. But again, as a public official from Saskatchewan with some familiarity with foot-and-mouth disease, let me try to articulate briefly some general observations on policy and administration for resources and Canada's future.

In the first place, I think the Conference has made a significant advance toward clarifying a framework of objectives for resources development policy. Despite the rapid industrialization and urbanization of the country, we see our renewable resources as increasingly valuable capital assets, capable of contributing to a substantial increase in our standard of living. This can be an increase in the obvious form of commodities for domestic consumption and an expanded level of foreign trade and international assistance. It also includes potential expansion in respect to constituents of the infrastructure essential to economic growth, particularly water, energy and the recreation of our human resources; the drive for better-organized, more productive and efficient urban patterns; and a better balance in regional development across the whole country.

Broadly speaking, the emphasis of responsibility for the first phase of growth lies in the private sector; for the second category, in the public sector. To this latter, because we are a democratic, human society, we must add: first, the obligation to minimize individual social cost and dislocation resulting from the continuing pace of needed resource-use adjustment and development; and second, the "primitive" objective of preserving renewable resources simply because - in spite of necessary and sophisticated cost-benefit analysis and the rational theory enunciated by Dean Bladen - these resources by their very nature are intrinsically important to us. I think I sensed in several

workshops an undercurrent of conviction of how our land, water and forests contribute in a very real way to our psychic income, to our sense of order, beauty and fitness, and to our morale and identity as a Canadian people. These are clearly objectives capable only of a political assessment, but nonetheless valid on that account.

In the second place, the Conference has gone far to clarify and illuminate the complex nature of Canada's resources problem. We have had our attention focussed on, or should I say dispersed over, a wide range of factors conditioning growth. Our country is too vast and too cold; scientific research and technological advance are increasingly difficult to achieve and disseminate; at first glance the bare facts of the constitutional division of powers militate against rational, long-term policy; our educational system is woefully inadequate to produce the human skills and understanding required for the future; and altogether our economic and social horizons are constantly shifting.

How can we, as individuals, organizations, or governments see our way clearly through this tangled maze to grasp a general framework and suggest appropriate private and public policies? The Conference, surprisingly enough, seems somehow to have succeeded in this Herculean task, and argues the following salient guidelines:

1. Optimum resource development in the future will only take place under - but is essential to - adequate

and reasonably stable growth in the overall Canadian economy. The effective criterion for such growth is full employment. This focusses emphasis upon the broad powers and responsibilities for fiscal, monetary and trade policies vested in the federal government. Its leadership role in this regard is clearly indicated.

2. The surge of demand for much of Canada's primary resource products which took place immediately after the war may have temporarily obscured the fact that much of our resource base had long since lost its pristine virginity. It seems clear that while our resource endowment is still abundant, the simple, exploitive phase of the richest and most accessible resources has ended. Today we are faced with the need for wiser use and productive investment in these capital assets, just at a time when competitive conditions in vital external markets particularly are stiffening. The implications for programs of expanding research, improving technology, and rational measurement to assure optimum investment policies in both the public and private spheres have all been elucidated and emphasized.

3. If it were ever possible to ignore the close inter-relationships between the various resource sectors, and between the technical and socio-economic aspects of development, that time is long past. At certain points, tradition and complacency challenge this view. But the weight of Conference evidence declares categorically that the increasing demands upon particular resources, combined with the need for improving productive efficiency in all areas, necessitates the multiple-use approach. Consequently, cross fertilization and the interplay of many skills and disciplines must enter into the understanding of technicians and administrators alike. The administrative forms and procedures necessary to achieve this comprehensive view are of critical importance. The stimulus to this kind of thinking on the part of hundreds of key resources administrators may well have been the most important result achieved by the Conference.

A third important broad current of the Conference has been to make clear the enhanced role of public policy in resources for Canada's future. An integral aspect of this is the need for wholly pragmatic approaches in defining the regulatory, co-ordinating and development role of public authority at whatever level. Further, renewable resource complexes clearly have no respect for political

boundaries, and impel a series of inter-locking relationships between and among various authorities. Just as in the case of multi-purpose projects, administrative "torpitude" and vested interest, no less than technological "torpitude" (recalling Professor Hare's phrase), must give way to experimentation with new administrative devices and structural forms. In government particularly we need some especially hard thinking about long-cherished traditions of departmental and ministerial autonomy and how time-honoured bureaucratic forms can be adjusted to evolving needs. Last of all, we need consciously and carefully to work out the particular relationships in joint action appropriate to Canadian federalism. Each of these issues turned up in workshop after workshop.

I want to conclude these remarks with some very tentative suggestions on the question of federal-provincial co-operation and the notion of "co-operative federalism" which has been sounded throughout the entire Conference. I think we now see that while the jurisdictional framework defines certain broad roles as between the two levels of government, there is no insuperable constitutional obstacle standing in the way of consistent and co-ordinated resource development policies. On the contrary, in a country as large and diverse as our own, the federal system can be a positive asset. If properly utilized, it can make for sounder decisions, more useful programs, and better long-term results than would otherwise be possible. It can do this if the federal government fulfils its

broad leadership role in sustaining the overall pace of balanced economic growth, but stands essentially in a supporting role to assist the provinces in effecting resource development programs initiated and planned primarily by the provinces themselves - individually or in groups.

Such integration, the Conference has made clear, is obviously necessary. Looking at the problems of resource development from a provincial seat, it seems to me that the federal influence is so pervasive and intrusive (and these words are not used in a critical sense), that success or failure rests largely upon the environmental policies adopted at the federal level. Federal tax policies may hinder or enhance development. Trade policies may make a resource redundant. Other economic or social policies may lessen the financial ability of the provinces to undertake resource investment. More positively the federal government is strategically empowered to undertake vital long-run capital financing, to evaluate and adjust the level of aggregate investment as required, and to influence in the broadest way the balance between the flow of funds into the public and private sectors. It would seem, therefore, that the keystone to the arch of a comprehensive resources policy for Canada's future is the federal government.

But without the rest of the stones, there is no arch. While on the one hand there are formidable obstacles to a province proceeding alone in a long-term resources policy, on the other hand

Remarks Prepared for a Panel Discussion on
"RENEWABLE RESOURCES AND CANADA'S FUTURE"

Resources for Tomorrow Conference, Montreal, Oct. 28, 1961

The problem of conservation is, in essence, a problem of capital investment and it involves a constant balancing of cost and return. This has not always been recognized, but as I have read the papers presented to this Conference, I realize that it is becoming recognized. I was happy to read in Dr. Thorpe's essay on the Historical Perspective: "The limitation of earlier ideas on rational development seems to have stemmed by and large from an emphasis on natural science...Conservation was an end in itself, a good thing. The object was to refine techniques to improve conservation, again in the physical sense...Conservation, or resource development, became a means to an end, an instrument of economic policy." Because this new attitude pervades the papers the first part of my remarks might appear redundant; but after immersion in detail it may be well to restate very simply some elementary but basic principles.

I have said that our problem is one phase of the problem of investment, and that it involves estimates of cost and return. So far as cost is concerned, we must consider two things. First, are we, as a nation, saving enough to enable us to invest enough (without inflation) to provide for the growth of population that we expect, and for the rise in the standard of living that we want? We must recognize that the cost of the aggregate capital investment, whether in resource development or in new factories, is the present consumption foregone. How tight are we prepared to pull in our belts now in the interest of our children and grandchildren? Not very tight, I fear! Second, are we as a nation investing in the right things, those from which the return will be highest? The cost in this sense is the return from the next most attractive alternative investment that is foregone in order to permit the investment that is actually made. As Dr. A. D. Scott put it in his

book on the Economics of Conservation: "Given an aggregate amount of savings available for investment in each period of time, increased conservation of resources must mean also a reduced endowment of buildings and equipment for posterity. It is ridiculous, then, to say that conservation is a movement which has the welfare of the future particularly in mind; conservation will not necessarily increase the future's inheritance; but merely change its composition from "capital goods" to "natural products." A conservation "bias" can impoverish the nation.

If we turn to the estimates of "return", three items call for consideration. First, we must notice the special relevance to conservation problems of the distinction made long ago by Professor Pigou between social and private net product. We have to be alert to cases where social cost is incurred and private gain is reaped, and cases where investments of high potential social return are not made because the returns do not accrue to individuals and society has not assumed the obligation to make them. Second, we have to recognize the very long-run character of most resource development programmes, and to ask whether the time horizons of society and of private business are consistent. Third, we have to remember the great uncertainties that are involved in making long-run investments in an age of rapid technological change. The natural science approach to resources is liable to ignore the fact that resources are to be thought of as relative to human wants and technology. I can still see in my mind's eye that vast slag-heap in the valley that I could see from my bedroom some fifty years ago--a negative resource, waste material occupying valuable space. And I can still see it disappearing into the maw of the furnaces as a new technology and increasing demand for steel turned this negative resource into a valuable asset, a positive resource.

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One of the forms of investment that is most likely to be too small if undertaken only with reference to private gain is investment in research, particularly in basic research, but also in

applied research. It was a matter of great interest to me, and of great pleasure, that research was a recurring theme in the papers that I read. It was also a matter of great interest that the role of the universities in such research was stressed. It was interesting to see the very general recognition of the twofold advantage of placing much of our scientific research in universities. First, many of our scientists want, and some require, the stimulus of teaching and the atmosphere of free inquiry of the university. So, research productivity per dollar spent is greater if much of it is spent in universities. I say advisedly "much," for there are other scientists who work most effectively in research institutions independent of any university. To secure the best results we must provide different environments suitable to the different characteristics of various types of research scientists. Second, our universities must supply the scientists of the future and only if our students are educated by men active in research are these young men and women likely to develop as effective research scientists.

The National Research Council has done, and is doing, magnificent work in supporting research in the natural sciences at the universities; the Canada Council has begun to give similar, though scarcely comparable, support in the social sciences. But, while support for current expenses in the natural sciences is more generous than in the social sciences, support for new buildings is available for the social sciences and not for the natural sciences.

Being involved in the planning of new buildings for chemistry, physics, and zoology--each involving expenditures in the order of six million dollars--I have become very conscious of the fact that at least 45 per cent. of the cost of these buildings is properly designated as "for research." Surely the Federal Government should put at the disposal of the National Research Council a capital fund to enable it to give assistance to the universities of Canada as they expand to meet the new demands of the seventies. Fifty million dollars for contributions, on a

matching basis as in the case of Canada Council grants, to science buildings over the next five years would seem to be a minimum. And the contribution to such a fund should be considered as "investment," not as "expense". It might well be more productive than most private investment; but the return would accrue to society, not to private individuals.

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Now, one of the items absent from the papers on conservation is conservation and development of our human resources. Of course, in one sense, this omission is right--we conserve resources for people. The "instrumental" approach to people, which would be appropriate in a slave society, is an abomination to a free, democratic, Christian people. The full development of the potential capacities of each individual is an educational objective that all accept in principle, and governments have gone far along the road to such provision, perhaps farther than purely democratic decision would have taken them. For, while this objective is accepted in principle, the taxes necessary for its implementation are not as readily accepted.

Now, I would argue very strongly as a citizen in favour of incurring the expense necessary for an attempt to achieve this humane objective. (I say "attempt", for it is not only money that is needed, and perhaps there is something to be said for the increase in funds to be a matter of steady increase as we experiment and learn to use them. A dramatic increase might lead to some dramatic mistakes !)

But I would also argue, as an economist, that a democracy may, and indeed must, pay attention to the instrumental approach. The quality of the people, health and strength, skill and intelligence, imagination and courage, trustworthiness and diligence, is one of the basic conditions of the wealth of any nation. Differences in these qualities are among the basic elements in the explanation of the different levels of productivity in different times and different countries. I would argue, therefore, that much

of the "expense" properly incurred in education is really "investment." At the university level less than 30 per cent. of the cost is assessed against the individual in the form of fees. The rest, except for some support from endowment, is carried by the taxpayer. The return might seem to accrue to the student whose earnings in his professional career seem likely to be high relative to those who have had less educational opportunity. Yet it is surely reasonable to maintain that society has secured a great return: without the social subsidy fewer would have trained; the services of these men would have been scarcer; their earnings would have been even higher and the aggregate productivity of the community would have been lower. I have in mind not only the services of doctors and dentists, of lawyers and engineers, of research scientists in the natural and social sciences, but also the services in all kinds of administration of liberally educated men and women. There is in my mind little, if any, conflict between the education required at the university level to justify the investment in persons as productive instruments and that required for the high educational objective of the full development of the students as persons. Whichever objective we have in mind, we should take seriously the plea of Dr. Wesley Mitchell: "It seems people who are well adapted to live in the future are people who can adapt themselves to changes with a cheer, the kind of people who can be happy even if they cannot see their places established long ahead, because they know they have the capacity for facing changes ... people who cannot face uncertainty in a courageous and effective fashion are going to be handicapped people." This we must remember in the universities: even more must it be remembered by those who are concerned with the training of technicians and tradesmen. If manpower planning is taken too seriously and training made too specific, there will be serious depletion of our human resources!

Because the education of research personnel is of crucial importance, the expense of universities in their Schools of Graduate

Studies, has a very special claim to be considered as productive investment. At this level of education the cultural independence arguments for provincial control make no sense whatever, and the spill over provincial boundaries of the return from such investment is abundantly clear. There is, therefore, a strong basis for the plea that the support of individual students now given from many sources, e.g., the National Research Council and the Canada Council, be supplemented by a direct grant to the universities for the support of graduate work. The cost to the universities of providing graduate instruction and facilities for directed research by such students must average some \$1,500 more than the fees charged to these students. A federal contribution of half of this amount for each full-time graduate student enrolled in a Canadian university would be a sound investment--a sound element in a conservation programme. If a contribution of this magnitude were made, it would be necessary to exercise some control over the quality of graduate work and to make some efforts to avoid undue duplication of highly specialized fields. The universities could, I think, be relied on to behave sensibly and to make highly productive use of such Federal support to graduate work as I here recommend.

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May I close by quoting from a speech I made some years ago at a Royal Society of Canada Symposium on the Social Impact of Modern Technology.

"Of the conditions favourable to increase in production, perhaps the most important are those under which pure science flourishes, under which the application of science to industry is encouraged, and under which an adequate supply of men with the requisite skills to utilize the new scientific techniques in industry is assured. This is not primarily a matter of economics, though a generous financial provision for education and research is not unimportant. Two conditions seem to me to be important. The first is academic freedom in the fullest sense. The second is

the revival of the aristocratic tradition in education. Democracy was right to revolt against educational privilege for the old aristocracy or for the new plutocracy. It was wrong in not providing the best possible education for the aristocracy of talent. It failed to realize that such provision was not a matter of individual privilege and right, but of social advantage, even of social necessity. I turn to Harold Innis: 'A democratic society can thrive only by the persistent search for its greatest asset, and by constant efforts to conserve, to encourage, to train, and to extend it... Universities must strive to enlist most active energetic minds to train most active energetic minds.' Yet we hear professors of education denouncing special classes for the gifted, preferring the well-adjusted to the brilliantly creative! Unless we imbue our children with the love of excellence, and give them the joy of maximum achievement, we cannot expect to reach the high levels of production that are within our grasp, we can scarcely hope to survive as a nation in an insecure world, and, what is much more important, we shall have failed to give them individually the key to a greater happiness than is open to well-adjusted mediocrity. The human ideal cannot be that of the 'contented cow'."

V. W. Bladen



Address by Mr. F. L. Mitchell
panel member at the closing plenary session
of the
Resources for Tomorrow Conference
28th October 1961

"Renewable Resources and Canada's Future"

In the invitation from Mr. Dinsdale to take part in the final session of this important conference the Minister indicated he would like us today to try to draw together some impressions of the work done during the past few days and the implications it held for the future. I am glad he used such general words as "impressions" and "implications" as I am sure he would be the first to agree that no one can make an accurate appraisal of such a diverse and extensive mass of discussion during the period of the conference itself. The real summing-up - the accurate appraisal - of the work done in Montreal during the past week must come later and in that context I think I am expressing the views of the conference when I say that the delegates welcomed the pronouncements made by the Prime Minister at the dinner on Monday evening and the expressions of cooperation given by the Premier of Quebec. These are most gratifying and we say to all participants, but more particularly to governments, both Federal and Provincial, that there is a sense of urgency. There must be an early start in utilising the thoughts and suggestions that have been developed during the conference deliberations.

There is a big job to do, let's get on with it. Perhaps I should couple with this the statement that across the land there must be deep conviction that the responsibility for successful implementation lies with the individual. In a free country, such as ours, it is action resulting from informed, demanding, yet constructive collective opinion which shapes government policy and finally gets the best results.

Today, the four members of this panel can do no more than give you some scattered impressions of the discussions this week and, perhaps, put before you a few ideas about renewable resources and their place in Canada's future. Fortunately we have different backgrounds and each of us will no doubt emphasize different resources. In my own case I can only speak of our renewable forestry resources as that is the only field in which I have any experience.

A few weeks ago, in the course of our delving into some historical documents we came upon a copy of Mulvany's "History of the County of Peterborough" written around 1885 and in it was a quotation from a lately issued "Report on Forestry" by Mr. R. W. Phipps, published by the Ontario government. You might be interested in a quotation from it both because of what it says and because of the vivid and colourful way it is said.

"If the lord of these servants should at any time return from a far country, and demand to know the use the Canadian had made of his talent of timber, we should be puzzled to extricate it from the napkin of fire in which we had wrapped it. For the advance of the Anglo-Saxon across the North American region has been, so far as trees are concerned, like that of Attila who boasted that no grass ever grew where his charger's feet had trodden. No distinction was ever more ruthless, more injurious, more lasting in its effects, or more difficult to repair than that to which Canadians, for the past hundred years, have cheered one another on. Among all the politicians who have in turn saved our country, few of them have thought it worth while to attempt to save the timber. And yet much might very easily, very valuably, have been done towards that end. But the Genius of Preservation was absent, while that of Destruction filled the land with his voice".

Mr. Phipps then goes on to give some vivid illustrations of early Canadian forestry practices, and then faces the central question.

"But one will say, the land has to be cleared.

Yes and no. It was necessary indeed to obtain land for the plough but had great reserves of the inferior lands and of the mountain lands been spared the axe, in proper and intermediate positions, good and constant succession of trees and large supply of timber might have been obtained therefrom, while the land which was cleared would not only have yielded larger crops than the present much broader acreage affords, but would have yielded them at a much smaller cost of anxiety and labour".

That presumably was the situation which faced the first Canadian conservation conference in 1906. You may, on reflection, conclude that in its essence, it is the situation facing us at this conference in 1961. The problem has become more complicated - more sophisticated. We have more knowledge and more public recognition of the need to use our renewable resources wisely. But in the 1880's Mr. Phipps was talking about the conflict between agricultural and forest use of land and he was suggesting that there should be integrated policies for land classification. Today, the number of recognized claimants is increased by adding to the claims of agriculture and forestry those of mining, water-power, wild-life preservation, recreation, and urbanization.

But the problem still remains to mobilize the various claimants and the many public authorities responsible for resources policy in the development of a wise programme for the integrated multiple-use of Canada's renewable resources.

I think that there has been general acceptance in this conference of this goal of multiple use of forest lands. The day has passed - if it ever really existed - when the forest industries claimed exclusive rights over the large areas from which they draw their supplies of raw material. They know that forests have an important function of maintaining the flow of water in our rivers and lakes and the power resources in those rivers. They know that some of the richer, more accessible areas may be able to produce more national wealth if they are used to grow wheat or cattle than if they are used to grow trees. They know that in our forest areas we have a great natural recreation ground for hunters and fishermen and campers, which are increasingly necessary with the growth of leisure time, and are increasingly valuable as a tourist attraction.

We are entitled to ask only that a balanced, integrated approach be made to the use of forest lands. Our agricultural experts would be the first to say that a poor farm should not be cut out of a good forest.

Our recreation experts will recognize that to keep a wild-life sanctuary healthy proper forestry methods must pertain and there must be protection from fire and disease. Fortunately there is enough for all legitimate claimants if we balance the claims wisely.

Conservation is a principle that the pulp and paper industry accepts and supports. It is no great credit to it to do so because it is clearly in the industry's self-interest. With the enormous capital investment required for a modern pulp and paper mill, an operator would be foolish if he did not look to the permanent and economical supply of his raw material. But conservation is a good word that can be given foolish applications. There is no validity in the "woodman-spare-that-tree" doctrine. The only value in conserving a renewable resource is to use it. A sub-marginal farm near a paper mill that needs pulpwood is a mis-use of resources. So also is a recreational area, which tourists do not or cannot enjoy in sufficient numbers.

I would like to take a few minutes to discuss with you some of the problems of the effective use of our forest resources. I will necessarily speak mainly of their use in the form of pulp and paper. This is something that has been touched on during this conference, but I have the impression that it has not been emphasized sufficiently.

I will assume that we now know how to grow trees, - that we can improve our protection of the forests against losses from fire, insects and disease - that we can apply the scientific skills to keep our forests as a truly renewable national resource. If we do not know enough about these important subjects now we certainly can and should do all possible to correct deficiencies wherever these may exist. This has been repeatedly said in this conference and constructive suggestions have been made. A remaining question is how many trees do we need and how do we use them?

As to the demand, I think we have in Canada been slow to realise the potential of world demand for wood-fibre. Again I must rely on my particular knowledge of the pulp and paper industry and I would direct attention to the pulp and paper industry's submissions and to the findings and recommendations of the Royal Commission on Canada's Economic Prospects of 1956 which constitutes one of our basic frames of reference.

A little over two years ago a world consultation to study the trends of world demand for paper and paper products was held in Rome under the auspices of the Food and Agriculture Organization of the United Nations. Last year a similar consultation was held in Tokyo devoted to examining the needs for pulp and paper of the free countries of the Far East.

I had the privilege of attending the Tokyo consultation and Mr. Fowler and members of our staff attended the Rome consultation. The Rome consultation concluded on the basis of careful statistical studies that were later confirmed at Tokyo that the total world demand for paper and paperboard would rise from 56 million metric tons in 1955 to 88 million tons in 1965 to 134 million tons in 1975. The experience for these apparently optimistic estimates over the past two years has fully supported them. We are faced with rapid growth of population and increased literacy and living standards, throughout the world, particularly in the less-developed regions. Despite the existence at present of excess capacity and great difficulty in world markets, the long-range problem, - and I emphasize the word long-range, - is one of meeting an increasing demand for pulp and paper products throughout the world. Canada, as a great reservoir of forest assets, has an enormous opportunity to share in servicing this demand. To do it we must chart our course wisely in respect to both the timing of new capacity and the soundness of its economy. Unless we do our optimistic view of this glowing future can easily be dimmed and it must be realised by all concerned that it will not be easy or automatic for Canada to share in the expansion of world demand for pulp and paper. We have no divine right to any particular share of world markets.

We cannot sit back and wait for demand to come to us.

There are other producers, other methods of production, other renewable resources in the world. In a word, it is a tough, competitive world in which we live, and if we do not compete effectively and efficiently we will lose out and be left conserving our renewable resources without benefitting from them.

Just how dependent are we in Canada on being competitive in world markets? The pulp and paper industry is Canada's largest exporting industry, accounting for more than one-fifth of all Canadian exports. Its dependence on world trade is shown by the fact that 80% by volume of its production in 1960 was sold beyond Canada's borders. Inescapably its prices must be set in world markets, - its domestic costs of production are important but they are not as important as a competitors lower cost when it comes to establishing a world price. If production costs in Canada are increased they cannot be passed on in the price of commodities sold in export trade.

In case some one may think I am talking about labour rates in Canada, I must say at once that it is much more than that. Certainly labour rates are important and labour must come to realise that their jobs and their security are dependent upon how well we meet competitive conditions in world markets. But the problem of increasing costs goes far beyond that.

It goes -

- to charges by government for taxes and social security programmes;
- to good management and efficiency of production within the industry itself supported by a broadened and intensified program of fundamental and applied research;
- to the education and training of our human resources so that they may be well qualified to fill the jobs which wise policies will generate and so take their place in shaping the destiny of a free Canada;
- to policies that will preserve access to overseas markets and avoid artificial barriers to our trade in products produced from our natural resources.

These and many other related subjects have been under intensive discussion with various degrees of emphasis in the conference workshops and in the short time at disposal we can do nothing more than commend the record to attention of whatever body is finally set up in accord with the Prime Minister's recommendation by the federal government in collaboration and with the cooperation of all the Provincial Governments.

We have talked about an integrated policy of multiple use of our renewable resources. But there is another item which I feel should be emphasized. It is that we need also an integrated national policy for the effective use and disposal of the products made from those resources. In short we need - and there is some urgency that we should attain it - a revised commercial policy for our export trade. And this becomes more evident the more we study the likely sequence of events consequent to the probable entry of Britain into the European Common Market.

The pulp and paper industry after searching study has publicly stated its position and needs in such event. We submit that it is incumbent upon other industries and agriculture to do likewise for regardless of what finally happens it seems evident to us that in the rapidly developing patterns of world markets Canada cannot remain static and at the same time be prosperous.

I have little doubt that Canada can grow the trees we need to supply a share of mounting world demands for products made from wood-fibre. I am sure that eventually we will learn how better to protect our forests and how better to conserve our great renewable forest assets.

Constructive suggestions along these lines have been put forward in the conference workshops. The key questions are - can Canada use the trees, effectively and economically in the world that exists? Can we develop a commercial policy for forest and other renewable resources which will get our goods to market - will keep our costs of production including labour costs, capital costs, and taxation costs, down to levels where we remain competitive with producers in other countries - and will fight against artificial barriers to the entry of our products to foreign markets?

It would be odd if no one in this conference had quoted Sir Wilfred Laurier to say that the Twentieth Century belonged to Canada. Standing in the second half of that century and regarding it with clear eyes, anyone could be forgiven for wondering if we really wanted to enter into our inheritance. But I suspect we do. We still seem to think that Canada has some kind of rendez-vous with destiny. If we do develop a commercial policy leading to widening our international markets, then we shall find our rendez-vous with destiny is not gloomy, but glorious.

October 28th, 1961



ADDRESS BY THE
HONOURABLE RENE LEVESQUE
MINISTER OF NATURAL RESOURCES OF QUEBEC
AT THE
ONTARIO-QUEBEC BANQUET
IN THE
QUEEN ELIZABETH HOTEL

Government
Publications

October 26th, 1961

Mr. Co-Chairman

Mr. Mayor

Mr. Chairman of the Conference

Mr. Ministers

Ladies and Gentlemen

On behalf of the Province of Quebec and her Government, may I begin by extending a warm welcome to all guests of this banquet; the honour of their presence we share with our friends of Ontario. We appreciate your presence.

(Mr. Lévesque then addressed the delegates of Quebec)

"We wanted all participants, no matter where they came from, to feel perfectly free and to have, in no way, the feeling that they were representing the Quebec Government. So thank you for being here on your own and for expressing your own views."

(Mr. Lévesque continued:)

"This conference is a golden opportunity for people from all walks of life in Quebec who are deeply concerned with resource development, to adopt Montaigne's advice that it is always beneficial to polish and sharpen one's thinking by grinding heads together."

(To summarize the achievements of the conference,

Mr. Lévesque concluded in French)

"Without committing ourselves for the future, we can already consider this conference an achievement. We cannot help but be richer for this experience, which is something of an accomplishment in itself; but, of even

more significance, all of us can be positive that not only have we, personally, benefited but we also have enriched others - This is most valuable."

(We now carry on with the English part of

Mr. Lévesque's address:)

This impressive and worthwhile conference is about Resources for Tomorrow. Now, this single word "Tomorrow", just by itself, is already a sort of program, because Tomorrow --- I think it is obvious --- Tomorrow is NOT TODAY, and even less is it YESTERDAY.

But "Tomorrow" certainly does not mean, by any means, to go rushing off half-cocked into some great unknown. "Tomorrow", however, I think, means immediate and indisputable benefits which we can all feel in the form of new contacts, of an unprecedented exchange of ideas and experience (in other words if the conference is to be the real landmark that it can be in its field), we should think a little bit about the meaning of "tomorrow" - and even of a few "tomorrows". In terms of economic development, "tomorrow" --- if it means anything to us --- means at least the next ten, fifteen or twenty years. Economists can figure it out, but it means something long-range. "Tomorrow" means resources, all resources, renewable and non-renewable, but it also means a lot more.

For instance, it will mean our situation in a continent of North America - a continent that we share (or rather we have some faint hope of sharing) with some rather important neighbours. It means also our situation in relation to another neighbour facing us across the North Pole, a neighbour whose every daily action is a challenge. It means our situation in the world where, we figure, Canadians make up an under-populated immensity of "haves" --- over-advantaged, too-well-fed people --- alongside uncountable millions of "have-nots", whose rising and every day more furious expectations constitute a problem that we have to face and to help solve, at least as

generously as anybody else. At the other extreme, for better or much slower, tomorrow ---it seems to be the hope at least of most of us --- will still mean Confederation.

Confederation is a very complicated set-up where the very presence of eleven senior governments in action is a problem by itself. That alone is sufficient indication of the wonderful jig-saw puzzle which any joint decision is bound to be. This multiple context of this continent, this world and even of this country and its various parts, is enough to preface the first remark that I would like to make. Even though marked by much eloquent talk about multiple-purposes, I honestly believe this conference will be the more fruitful the more it sticks to a basic modesty about itself.

Such things as land, water, forests which we are talking about here, and mining resources (which we are not) are, obviously the A-B-C of any country's economic life. But resources as such are just a start; they are but the beginning of that long and incredibly complex alphabet of modern economic activity which stretches all the way into social problems, — employment, finance, markets, etc.. This conference, in other words, is essentially a preliminary effort to assess one basic part of the economic picture. And you can't tear a 'part' out of the picture, it has to stand as the 'whole'. That means that the results of this conference, once they are sorted out, will have to be integrated carefully into a much larger ensemble, if they are to prove as assuredly fruitful as they should — and can be. This promises to be such a huge and many faceted task that I think the one thing we should stick to, is that this is essentially a free and unlimited gathering of specialists for the collection of facts, information, opinions from all over Canada. We cannot pretend to supply definite and immediate applicable answers, especially overall answers, to all, or even to many, of the questions that are raised.

This does not mean that quite a few valid answers cannot be proposed here, emerging out of lively exposition and argument. But any such

precious find will have to be taken back to our various seats of government and there, examined carefully, to see where and how - even how much - it fits. Because like it or not, I think that's the ransom of democratic government and democracy. Churchill once said that democracy is the worst possible system of government, except all others. But he never lived in confederate democracy.

Now, take our case here in Quebec. (After all, if we are going to pay half the bill here tonight, we are going to talk about ourselves, too. Or maybe we can settle the bill on a per capita basis.) Those new fiscal arrangements, who do they favour? We, in Quebec, have immense resources, both renewable and non-renewable. In fact, we are practically ashamed of having so much, and we would even blush gracefully if we could get back a little more of Labrador. In fact, I think we have something of practically everything that is most valuable in modern economic life, and we have some huge reserves of quite a few things.

These vast resources are there, if they are there for any kind of justifiable reason, for the benefit of the people. And because our people are more aware than ever before of their ownership, their basic ownership, it means that we have needs comparable in magnitude to our resources. Now, if you don't mind, I would like to be as frank in English as we can in French. I think that is one of the things that we need the most, so you can like it or lump it. The vast majority, 85 per cent, of the people who feel so rich and so needy at the same time are French-Canadians, as a lot of you know. There are many reasons - historical, social and even governmental ----- why French-Canadians, who are the majority owners of Quebec resources, often feel very discontented, even quite frustrated, about their ownership and what's happened to it.

The brutal fact is there, and the brutal fact is that they own much but they participate in very little. Now, naturally, they feel that they own

the greatest share of Quebec's common property, but that they receive much too little of the income. That's a very dangerous situation. Whenever you have a man who owns the stock but does not get the dividends, just imagine! It's a very unhealthy situation, economically, and a gathering such as this is certainly better than most of the importance of economics. Well, economically it is bound to breed feeling of second class citizenship, and that is very dangerous. If we just look at the papers or wander around outside our borders, we know such a feeling in today's world is becoming unbearable wherever it exists. Now, it is just as unbearable here, although perhaps less dangerous, because we are such nice well-behaved people. But, basically, it is just as unbearable here as anywhere else.

More attention than ever, for instance, is given in Quebec, as it is elsewhere, to education, to the promotion of talent and to our own version of the revolution of rising expectations. We in Quebec --- in particular the 85 per cent of Quebecers who are French-Canadian --- are confident, in fact we are certain, that such expectations will not be in vain, because "people" are still the most powerful of all resources. Once they have their minds fixed on new expectations, if they are logical and just, something has to happen. If such expectations should be in vain, then Canada as we know it, would definitely be in the soup - "pretty hot pea soup" - that's for sure.

I would ask you please to believe that I'm being as honest and as frank as I know how to be. Maybe this sounds a little quixotic to non-Quebecers, because being a majority in most provinces in Canada and in the Dominion Government you don't feel those things as easily. Naturally you don't live them, as we do. I believe this is a basic and urgent thing. Now this means, if it is true, that in the interest of Canada as a whole as much as of Quebec itself, we think our first and foremost priority is to make this province, which makes up such a huge chunk of Canada, as healthy, confident, progressive, as quickly and as solidly as possible. Only this can assure for the years to come, that Quebec

will really play its vital role in Canadian stability and prosperity.

Now, in the fields we are particularly concerned with here, we are faced, as I think other governments are, with our own internal problems of adapting to new economic necessities. These internal problems of administrative structures and communications are shared, in greater or lesser degree, by all governments. For an integrated policy in resource, development and conservation, we need to revamp many of our traditional channels, and probably to revamp most of our traditional processes of study and of decision-making. Since government is called upon to make more decisions all the time, to be more and more present, it is bound to be more and more involved in all economic matters.

Now some like this, some don't. But I think the fact is there, if we are talking about realities and not pamphleteering, and it is a growing fact. Since this is so, the government should be ready with all relevant data and with a sense of direction, especially a sense of direction every time it has to decide something. This, I think, would come close to a layman's definition of modern economic planning, as opposed to 19th century laissez-faire. The 19th century was a wonderful century but we are not living in it. Nineteenth century laissez-faire and the old concept of government, which was so comfortable, is now gone. The concept of a government which economically was considered to be a useful tool for private interest is finished. Any such government is a Dodo and does not know it.

This is the basic way we look at it, because it is not easy to get out of old habits in Quebec. In resources particularly, it means that planning and progress, if they are to be conceivable in our country the way it is, have to begin in our own backyard. The problems thus created for Quebec are vast enough for a beginning. In various ways, doesn't this apply to most of us? To be efficient and to be durable, doesn't any building have to start with foundations?

Canadian foundations --- economic, but also political, social and historical --- are regional, and must remain so. Any time we think of putting on a roof before building foundations in well thought out and well concerted effort, we usually currt nothing but trouble in rather short time. This basic attitude will still be with us at the end of this conference, but with one important addition. Thanks to all of you, we will have a better understanding of our Quebec version of resource problems.

First, we will go back home and evaluate results as best we can, as quickly as we can. We will try to apply everything usable for planning our own projects. With what we learn here we could on being able to work harder and more efficiently for a progressive and self-reliant Quebec. This is certainly our most important possible contribution to the welfare of the country as a whole. After this priority is well understood, we feel that any continuation on a national scale is a question for Saturday's Steering Committee meeting.

With all the enthusiasm that has been generated here, and with all our common needs that we know about, it is a sure thing that we need some continuation of this three-year-in-the-making, impressive, Canada-wide conference. But, premature talk about structures or definite plans could create nothing but difficulties. That is why we, for instance, have decided to evaluate as thoroughly as we can by Saturday, though it will only be a preliminary evaluation. Where do we go from there? I think it should be enough to say that nothing definite can come before our various governments consider the results as we bring them back. As stated by the General Secretary in a remarkable statement, this Conference is definitely not decision-making.

If you don't mind, I am going to be a Quebecer again. We make it complicated, but much more interesting..... One thing we are pretty sure about is that any continuation of this conference leading toward action, whether provincial or interprovincial, or federal-provincial, if we want to be realistic about it, will have to respect one unfortunate but very vital priority - money.

As governments we are all slicing up the poor old guy who is a municipal, provincial and federal taxpayer. In Canada, money in this sense is a fighting word. Our basic position is well known and it applies here, I think. Planning and development should start opératoire. That is, they should be conceived and implemented altogether; implemented because the letter and the spirit of the Constitution seem to say that we will have to start at the provincial or regional level. At that level we are sure we need more money. Development means money. Now, how do we go about it without any shooting, without any more barriers and astringents? Here, as elsewhere, methods, procedure and mutual respect are essential, and there are complicated things to get going. So we simply would say this: Some revamping of sources of revenue, if need be some radical revamping, based on real needs of governments and on real priorities, is one urgent requirement for our confederation. It is one, in fact, of the main conditions of a healthy survival of our national structure. Certainly it is essential for any practical long-range results from this and other comparable conferences.

(In conclusion, Mr. Lévesque summarized in French the highlights of the English portion of his address.)

